This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

**Usage guidelines**

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

+ *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.
+ *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.
+ *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.
+ *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

**About Google Book Search**

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at `http://books.google.com/`

600035285T

600035285T

15 & 16 VICTORIÆ, Cap. 83. Sec. XXXII.

# SUBJECT-MATTER INDEX

to the Chronological & descriptive Index

OF

# PATENTS APPLIED FOR AND PATENTS GRANTED,

## For the Year 1871.

---

Printed and Published by Order of the Commissioners of Patents

UNDER THE

ACT of 15 & 16 VICTORIÆ, Cap. 83. Sec. XXXII.


BY BENNET WOODCROFT, F.R.S.

CLERK TO THE COMMISSIONERS OF PATENTS.



LONDON:

PRINTED BY GEORGE EDWARD EYRE AND WILLIAM SPOTTISWOODE,
PRINTERS TO THE QUEEN'S MOST EXCELLENT MAJESTY.

PUBLISHED AT THE OFFICE OF THE COMMISSIONERS
OF PATENTS FOR INVENTIONS,
SOUTHAMPTON BUILDINGS, HOLBORN.

1872.



176. j. 81.

# INDEX OF SUBJECT-MATTER

TO

# CHRONOLOGICAL AND DESCRIPTIVE INDEX FROM JANUARY 1 TO DECEMBER 31, 1871.

[The names printed in *Italic* are those of the persons by whom the inventions have been communicated to the Applicants for Letters Patent. The consecutive numbers of the Applications, which are prefixed to the Abridgments contained in this volume, follow the names.

## A.


**Accidents (prevention of):**
Vogan, 37.
Russell, 43.
Randell, 63.
Rowatt, 77.
Huckvale, 82.
Waterson, 174.
Cockshoot, jun., Wrigley & Weatherill, 179.
Wilke & Esplen, 342.
Dawson (*Dawson*), 381.
Jennings, 400.
Glaskin, 492.
Snowden & Moffat, 525.
Baxter, 547.
Boyd, 559.
Lake (*Clemens*), 602.
Hargreaves & Rostron, 618.
Birchall, 641.
Kendall, 738.
Präger, 739.
Waller, 770.
Birchall, 898.
Birchall, 899.
Sprengel, 921.
Atkins, 934.
Murcott, 1003.
Field & Olrick, 1043.
Robson, 1146.
Finley, 1173.
Hayman, 1329.
Garnett, 1360.
Vansteenkiste & Barbe, 1401.
Plimsoll, 1448.
Clarke & Hughes, 1481.
Cowburn, 1546.
Walker, 1571.
Davies, 1716.
Hogg, 1742.
Shive, 1803.
Manceaux, 1811.
Cartwright, 1872.
Irvine, 1896.
Rogers, 1927.
Qurin & Essl, 1934.
Mirchin, 1952.
Granville (*Granville*), 1970.
Watson & Andrews, 2223.
Clark (*Robinson*), 2280.
Milbank, 2283.
Nicholson & Price, 2430.
Viellet & Verny, 2441.
Dietrichson, 2476.
Lees, 2565.
Yates, 2677.
Steele, 2817.
Langford, 2928.
Willison, 3026.
Plimsoll, 3057.
Ney, 3033.
Ney, 3131.
Wilders, 3145.
Smith (*Le Mat*), 3218.
Tylor, 3339.
Entwistle, 3355.
Selfe, 3389.
Newton (*Otis & Otis*), 3430.
Calantarients, 3517.

**Accumulators of air or blast for furnaces.** *See* "Air-supplying."

**Acidometers:**
Blaise, 2594.

**Acids:**
Kenyon & Swindells, 79.
Madge (*Fyrench*), 176.
Lorberg, 244.
McConville, 364.
Smith (*Du Motay*), 491.
Anderson, 718.
Deacon, 753.
Rowan, 785.
Königs, 853.
Riddell, 923.
Jackson, 972.
Townsend, 995.
Clark (*Rice & Driggs*), 1009.
Doble, 1077.
Irvine & Johnson, 1084.
Spence, 1135.
Spence & Dunn, 1136.
Schwartz, 1179.
Clark (*Aubertin*), 1181.
Chance (*Gridley*), 1243.
Tanner, 1489.
Larkin, Leighton & White, 1518.
Crockford, 1531.
Spence & Dunn, 1589.
Königs & Henderson, 1642.
Deacon, 1682.
Spence (*Perret, Bros., & Olivier*), 1807.
Way, 1851.
Hargreaves & Robinson, 1920.
Hargreaves & Robinson, 1928.
Tanner, 2080.
Anderson, 2134.
Moffat & McLaren, 2200.
Dann (*Ahrens*), 2237.
Townsend, 2267.
Rowan, 2384.
Weldon, 2389.
Claudet, 2516.
Young, 2557.
Young, 2558.
Rydill, 2752.
Rydill, 2753.
Spence, 2834.
Vassard, 2926.
Hughan, 3060.
Terrell, Hogg & Thomlinson, 3116.
Annandale, jun., 3183.
Fortoul, 3249.
Knight, 3261.

**Acids (cases for packing):**
Ripley, 781.

**Advertising; advertisement cards:**
Norris (*Barnaby*), 1526.
Hosking, 2489.
Papier, 2941.
Miccio, 3042.

**Aërated liquids; effervescing draughts:**
Foster, 466.
Briggs & Bailey, 568.
Ripley, 781.
Lake (*Ireland*), 789.
Delavigne, 984.
Sweetser, 1064.
Putnam, 1439.
Rawlings, 1684.

**Aërated liquids, &c.—*cont.***
Starnes, 1697.
Codd, 2212.
Minasi, 2404.
Banks & Walker, 2495.
Pow, 2760.
Kilner & Kilner, 2882.
Cotterell, Prudencio & Wilcocks 2945.
Selden, 2967.
Spear, 3286.
Pritchard, 3320.
Barrett & Elers, 3484.

**Aërial-machines:**
Osselin, 728.
Boyman, 944.
Hunt (*Courtemanche*), 2031.
Rieber, 2781.
Wilson, 3067.
Moy & Shill, 3238.

**Aëro-pyrometers.** *See* "Pyrometers."

**Ageing wines and liquors:**
Lake (*Gilman*), 141.
Rumine, 1467.

**Air and gas engines; pneumatic motive-power:**
Warsop, 150.
Rider, 164.
Dawson (*Dawson*), 381.
Graddon, 383.
Armour (*Lamm*), 517.
Marchant, 546.
Murphy, 646.
Salmon, 695.
Osselin, 728.
Robson, 900.
Johnson (*Schmid*), 906.
Morgan-Brown (*Goulding*), 1199.
Ogilvie, 1300.
Clarke, 1407.
Towle (*Babcock*), 1418.
Hughes (*Sigl*), 1641.
Schmitz, 1724.
Kaeuffer, 1794.
Marchant, 1949.
Galloway, 1958.
Miller, 2060.
Paget & Asher, 2228.
Haseltine (*Leggo*), 2254.
Anderson, 2326.
Brown, 2338.
Hughes (*Windhausen*), 2355.
Baudot & Roettger, 2531.
Plessner, 2587.
Darlington, 2657.
Trossin, 2680.
Geisenberger & Cherpit, 3056.
Bridson, 3190.
Gwynne & Beale, 3449.
Wightman, 3487.

**Air as applied in drawing liquids from casks:**
Andrews, 1891.
Cole, 2650.
Stapfer & Sinclair, 2837.

Air-hammers. *See* "Hammers."

Air impregnating with hydrocarbon vapours:
Blick, 3156.

Air pumps; air exhausters:
Galloway & Beckwith 247.
Paget & Asher, 511.
Murdoch (*Roettger*), 992.
Lake (*Peters*), 1007.
Harris, 1056.
Truscott, 1172.
Clarke, 1407.
Marchant, 1490.
Shaw, 1497.
Greig & Daniel, 1599.
Brough & Fletcher, jun., 1777.
Kaeuffer, 1794.
Galloway, 1958.
Jochumsen, 2207.
Paget & Asher, 2228.
Clark (*Robinson*), 2280.
Behrns, 2304.
Fletcher, 2383.
Westinghouse, jun., 2436.
Smith, 2507.
Ellis, 2626.
Murdoch (*Roettger*), 2701.
Gwynne & Beale, 3449.
Wightman, 3487.

Air supplying in dressing and treating flour and grain:
Palmer, 969.
Spencer, 993.
Houghton, 1774.
Joannides, 1832.
Bate, 2016.
Prosser, 2249.
Behrns, 2304.
Chichester & Chichester, 3346.
Edlington & Edlington, 3433.

Air supplying in manufacturing processes:
Payne, 19.
Hydes, Bennett & Bennett, 54.
Nicholls, 75.
Hays, 111.
Pilkington, 207.
Young, 248.
McConville, 364.
Goreham, 385.
Barraclough, 495.
Douglas, 507.
Paget & Asher, 511.
Bannehr & Matthews, 556.
Blair, 635.
Kirkham, Ensom & Spence, 645.
Lowry, 712.
Seddon, 716.
Lake (*Nilson*), 826.
Croll, 845.
Rock, 876.
Eyton, 1028.
Crighton & Crighton, 1045.
Lake (*Hooper*), 1096.
Clayton, 1129.
Clark (*Aubertin*), 1181.
Lake (*Perkins*), 1323.
Payne & Newton, 1656.
Deacon, 1682.
Lister, 1821.
Valentin, 1837.
Townsend, 1843.
Demailly, 1863.
Fenton, 1897.
Weldon, 2006.
Norman, 2173.
Prosser, 2249.
Vaughan (*Lennig*), 2269.
Haseltine (*Mitchell*), 2299.
Johnson (*Sellers*), 2612.

Air supplying in propelling ships:
Harrington, 1820.

Air supplying in signalling:
Sperati (*Guattari*), 1346.
Walcker, 1632.
Hodson, 2065.

Air supplying in signalling—*cont.*
Vagnolini, 2336.
Wier, 2585.
Granville, 2758.
Calvert, 2777.

Air supplying or ventilating. *See* "Ventilating."

Air supplying to furnaces, forges, stoves, ranges and flues:
Furlonge & Churchill, 46.
Barker & Bean, 114.
Ritchie, 185.
Newton (*Lorillard*) 212.
Haywood & Parker, 216.
Boyle, 221.
Raper & Stephenson, 319.
Bessemer, 386.
Mines & Evans, 387.
Barclay, 404.
Seel & Shaw, 417.
Wilson, 419.
Bromilow, 422.
Jobson, 453.
Crichley, 478.
Rennie, 541.
Sykes & Stokes, 658.
Edwards, 672.
Salmon, 695.
Siecinoski (*Frisac*), 697.
Wilson, 717.
Head, 754.
Kent, 813.
Lake (*Woodson*), 910.
Atkins, 934.
Halliday, 962.
Jackson, 972.
Hunter, 1065.
Borguet, 1092.
Heesom, 1102.
Kenworthy & Johnstone, 1127.
Crighton, 1145.
Tildesley, 1224.
Königs, 1305.
Johnson (*Hill & Thumm*), 1450.
Blunn & Wild, 1504.
Huntly, 1536.
Poupard & Thomson, 1609.
Butterworth & Howarth, 1636.
Jordan, 1719.
Hinchliffe, 1753.
Whitwell, 1797.
Siemens, 1959.
Davidson, 1962.
Dormoy, 1967.
Chaffer, 2038.
Roberts, 2066.
Amos, 2179.
Adams, 2198.
Amos, 2245.
Edge, 2268.
Newton (*Mackensie*), 2346.
Davies & Eckersley, 2629.
Robinson, 2658.
Lake (*Roots & Roots*), 2691.
Flower, 2694.
Butterworth & Heap, 2712.
Tayler, 2778.
Whitelaw, 2840.
Evans, 2886.
Roberts, Armitage & Haley, 2917.
Barnes, 3019.
Hinchcliffe & Milnes, 3097.
Dilnutt & Knowelden, 3101.
Parsell, 3207.
Wiborgh, 3505.
Wilde, 3509.

Air supplying to lamps and burners:
Johnson (*Merrill*), 11.
Rowatt, jun., 569.
Eyton, 748.
Mines, 1140.
Johnson (*Merrill*), 1178.
Lake (*Trudeau*), 1207.
Agnellet, 1499.
Irvine, 1896.
Qurin & Essl, 1954.
Silber & White, 2007.
Goldsmith & Dilkes, 2063.
Douglass, 2686.

Air supplying to lamps, &c.—*cont.*
Evans, 2886.
Kemp (*Parry*), 3075.
Dawson, 3468.

Air supplying to musical instruments:
Tongue, 236.
Benson (*Burdett*), 1658.
Holt, 2164.
Scantlebury, 2905.
Brandon (*Fogelberg*), 3086.

Alarms. *See* "Signals."

Alcohol; amyl alcohol:
Campbell & Appleby (*Leplay*), 2.
Toepler, 1052.
Schwartz, 1179.
Rumine, 1467.

Alcohometers:
Blaise, 2594.

Ale and beer. *See* "Brewing."

Alimentary substances. *See* "Preserving food."

Alarms. *See* "Signals"

Alkalies and alkaline salts:
Furlonge & Churchill, 46.
Kenyon & Swindells, 79.
Rider, 164.
Lorberg, 244.
Sloper & Washer, 329.
Smith (*Du Motay*), 491.
Annandale, jun., 605.
Gibb & Gelstharp, 624.
Annandale, jun., 664.
Deacon, 691.
Anderson, 718.
Wigg, 720.
Rowan, 785.
Croll, 845.
Königs, 853.
Claudet, 904.
Riddell, 923.
Townsend, 995.
Clark (*Rice & Driggs*), 1009.
Spence, 1036.
Doble, 1077.
Irvine & Johnson, 1084.
Spence & Dunn, 1136.
Balmain, 1299.
Königs, 1305.
Morfit, 1420.
Tanner, 1489.
Crockford, 1531.
Königs & Henderson, 1642.
Sinclair, 1666.
Smith (*Du Motay*), 1725.
Hargreaves & Robinson, 1733.
Tanner, 1776.
Tessier, 1834.
Valentin, 1837.
Hargreaves & Robinson, 1854.
Fenton, 1897.
Deacon, 1908.
Hunt, 1918.
Hargreaves & Robinson, 1920.
Hargreaves & Robinson, 1928.
Weldon, 2008.
Crockford, 2024.
Way, 2028.
Young, 2122.
Weldon, 2169.
Smith (*Du Motay*), 2231.
Vaughan (*Lennig*), 2269.
Rowan, 2384.
Weldon, 2389.
Young, 2558.
Walker, 2606.
Deacon, 2667.
Stephens, 2770.
Spence, 2834.
Gossage & Gossage, 2868.
Chaudet, 2871.
Catcheside, 2920.
Vassard, 2926.
Bramwell, 2962.

**Alkalies, &c.—*cont.***
Clark (*Blanchard, Bang & Provost*), 2983.
King (*Lauder*), 3028.
Hughan, 3060.
Hall, Gibb & Gelstharp, 3143.
Annandale, jun., 3183.
Knight, 3261.
Eveleigh, 3348.
Wanklyn, 3436.
Scott, 3515.
Tanner, 3518.

**Alkalies (packing and carrying):**
Ripley, 781.
Hyatt, 3022.

**Alphabetical arrangement of words.** *See* "Indexes."

**Alum (packing and carrying):**
Hyatt, 3022.

**Alumina and its compounds:**
Kenyon & Swindells, 79.
Townsend, 995.
Aitken & McAlley, 1337.
Newlands, 1416.
Spence & Dunn, 1589.
Townsend, 2267.
Weldon, 2389.
Rydill, 2753.
Spence, 2834.

**Ambulances or litters:**
Turner, 1367.
Leatham, 2726.

**Amianthus.** *See* "Asbestos."

**Ammonia.** *See* "Alkalies."

**Ammoniacal liquors.** *See* "Alkalies."

**Ammonium and its salts:**
Lorberg, 244.

**Anchors:**
Smith, 552.
Betteley, 563.
Glover, 609.
Lake (*Jordeson*), 1202.
Davis & Hopcraft, 2046.
Glover, 2370.
Newton (*Godfrey*), 2393.
Mackay, 2564.
Lenox, 2566.

**Anchors used in ploughing.** *See* "Ploughing."

**Angle iron:**
Hanson, 402.
Radford, 560.
Barber (*Forbes*), 1212.
Galloway, 1628.

**Angles (indicating):**
Houghton, 180.
Innes, 817.
Hoskold & Winspear, 1240.
Wilde & Sinclair, 2442.

**Animal oils.** *See* "Oils (animal)."

**Animal traps.** *See* "Traps."

**Annealing pots:**
Nevill, 273.
Paget, 510.

**Anthracene:**
Fenner & Versmann, 3486.

**Antimacassars:**
Gibson, 2961.

**Antimony:**
Smith, 205.
Doble, 1077.

**Antiseptics.** *See* "Medicines."

**Anvils:**
Haseltine (*Holley*), 69.
Stevenson, 2654.

**Aqueducts:**
Newton (*Graham*), 1035.
Brannon, 2703.

**Area gratings.** *See* "Gratings."

**Armour plates:**
Snowdon, 97.
Balme & Crossley, 424.
Woore, 932.
English & Wilson, 1465.
Galloway, 1628.
Balme & Crossley, 2139.

**Artificial flowers and leaves.** *See* "Flowers."

**Artificial stone and marble.** *See* "Stone."

**Artificial teeth.** *See* "Dentistry."

**Artificial wood.** *See* "Wood."

**Artizans' and mechanics' tools:**
Smith, 506.
Edwards, 1196.
Lake (*Eaton*), 2403.
Swan, 2785.
Lake (*La Bréche-Viger*), 3246.

**Asbestos; amianthus:**
Sutherland, 640.
Johnson (*Fish*), 897.
Lindsay, 1436.
Greaves, 1698.
Mills (*Lewis*), 1882.
Roberts, 3148.
Harrison, 3396.
Cleghorn & Reid, 3440.

**Ashes (discharging and using):**
Preston, Prestige, Preston & Prestige, 96.
Casebourne, 120.
Purves, 1805.
Taylor, 1969.
Lupton, 2140.
Smith, 2784.
Hughan, 3060.

**Asphalt:**
Cochrane, 520.
Wright, 548.
Wright, 723.
Newton (*Jenty*), 750.
Newton (*Graham*), 925.
Newton (*Graham*), 1035.
Macomber, 1315.
Chadwick, 1479.
Dowson & Dowson, 1488.
Bessemer, 1737.
Tibbitts & Fullwood, 1783.
Skinner, 1795.
Brown, 1838.
Croskey (*McKinley*), 1842.
Bowyer, 1885.
Norton, 1938.
Paul, 1985.
Bonneville (*Guerriero, Cadoux & O'Connell*), 2096.
Cochrane, 2120.
Livesey, 2385.
Johnson, 2391.
Bresson, 2541.
Lake (*Vandemark & Scharf*), 2554.
Rogers & Soares, 2586.
Candy, 2625.
Williams & Price, 2705.

**Asphalt—*cont.***
Burge, 2723.
Emmens, 2738.
Mulholland, 2772.
Bennett & Rowe, 2780.
Granville, 2829.
Macintosh, 2992.
Holmes, 3015.
Spencer, 3094.
Price (*Martins*), 3095.
Austin & Ellis, 3219.
Jupp, 3338.
Evans, 3357.
Pinkus, 3359.
Ellis, 3383.
Pender & Rae, 3398.

**Atmospheric breaks.** *See* "Breaks."

**Attemperators:**
Turnock, 1480.
Clark (*Petitpierre*), 2616.

**Augers and bits:**
Swan, 2785.
Lake (*La Bréche-Viger*), 3246.

**Awnings and canopies:**
Archer, 107.
Ellisdon, 1051.
Ritchie, 1404.
MacCarthy, 2550.
Wood, 3522.

**Axes and adzes:**
Lismann, 66.
Sanders, 837.
Marsden, 1961.
Hardy, Stayner & Harrison, 2498.
Hardy & Stayner, 2527.
Lake (*La Bréche-Viger*), 3246.

**Axles, axle-boxes and stuffing-boxes:**
Hale, 73.
Swan, 99.
Clark (*Ellis*), 261.
Knowles, 343.
Johnson (*Wheeler*), 386.
Scaife & Younger, 502.
Wilkes, 586.
Tenwick, 626.
Dodds 627.
Robins, 677.
Feldtmann (*Gehrckens*), 692.
Neuhaus (*Beuther*), 806.
Johnson & Jones, 879.
Thomson & Macredie, 886.
Johnson (*Fish*), 897.
Lake (*Smith*), 1017.
McNeile & Slater, 1168.
Shaw & Boardman, 1283.
Ogilvie, 1300.
Reynolds & Mays, 1342.
Johnson, 1378.
Turner, Messrs., 1556.
Coleman & Morton, 1630.
Smart, 1730.
Smith & Coventry, 1812.
Mills (*Lewis*), 1877.
Mills (*Lewis*), 1882.
Revell & Collin, 1992.
Zamoyski & Jackson, 2372.
Fletcher, 2383.
Lake (*Eaton*), 2403.
Lake (*Brown*), 2417.
Davis, 2765.
Clark (*Herrmann*), 2852.
Osmond, 2856.
Smith (*Lengelée & Bouttier*), 2867.
Trevithick, 2977.
Davage, 3014.
Reed & Bate, 3098.
Hughes, 3129.
Smith (*Messrs. Tiranoff & Kousakoff*), 3164.
Watteeu (*Duterne*), 3168.
Lake (*La Bréche-Viger*), 3246.
Zamoyski & Jackson, 3399.
Webb, 3442.
Hughes (*Kellogg*), 3473.
McEvoy (*Painter*), 3527.

## B.


Bacon (curing). *See* "Preserving food."

Bags and satchels:
Minns, 438.
Schwartz & Schwartz, 539.
Dee, 863.
Smith & Watson, 885.
Thornhill, 1158.
Tribe, 1171.
Tonkinson, 1281.
MacCarthy, 2550.
Walker, 2621.
Briggs, 2971.
Clark (*D'Argy*), 3109.
Hart, 3279.
Hall, 3314.
Vickers, 3371.
Jaques & Sterne, 3437

Baking powders:
Lloyd, 514.
Ripley, 781.
Clark (*Rice & Driggs*), 1009.

Balances. *See* "Weighing."

Balconies. *See* "Buildings."

Bale ties. *See* "Hoops."

Balling thread. *See* "Winding."

Balloons. *See* "Aërial-machines."

Ballot apparatus. *See* "Voting."

Balusters:
Touaillon (*André & Fleury*), 3199.

Bands and belting for machinery:
Kent, 606.
Sutherland, 640.
Unsworth, 1088.
Dickinson & Parkinson, 1414.
Bottomley & Haggis, 1515.
Newton (*Cade*), 2079.
Newton (*Good*), 2211.
Halliwell, 2453.
Brodie, 2482.
Haines, 2773.
Tullis & Tullis, 2974.
Colnot, 3100.
Galland (*Muratori*), 3227.
Prosser, 3251.

Bank-notes, cheques, bonds, &c.:
Lewis, 2468.
Schuurman, 3306.

Bark (disintegrating). *See* "Disintegrators."

Barley. *See* "Grain and seeds."

Barometers:
Cochrane (*Guibal*), 173.
Woodbury (*Smith*), 948.
Davis, Ilbery, Isangk & Sullivan, 1680.
Manier, 2448.
Brown, 3007.

Baryta and its salts:
Dann (*Ahrens*), 2237.

Baths and bath appliances:
Vogan, 37.
Russell, 43.
Randell, 63.
Waterson, 174.
Andrew, 1306.
Tongue, 1478.
Harrison, 1635.
Morrison, 1955.
Shanks, 2471.
Neilson, 2483.
Lumb, 2630.

Baths, &c.—*cont.*
Slagg, 2697.
Williams, 2787.
Angell, 2878.
Roberts, 2907.
Garrett, 3235.
Verity & Verity, 3341.

Batteries and fortifications:
Crosnier, 694.
Smith, 1138.
Liardet, 2611.
Brannon, 2703.

Bayonets and side weapons:
Wetmore, 100.
Sanders, 837.
Tottenham, 946.

Beacons. *See* "Lighthouses."

Beaming machines. *See* "Warping."

Beans. *See* "Grain and seeds."

Bearings, journals and steps:
Swan, 99.
Benson (*Gardner & Turrell*), 332.
Knowles, 343.
Booth (*Draper & Draper*), 737.
Mitchel, 753.
Neuhaus (*Beuther*), 806.
Johnson & Jones, 879.
Clark (*Squier & Squier*), 892.
Johnson (*Fish*), 897.
Shaw & Boardman, 1283.
Reynolds & Mays, 1342.
Lake (*Baker*), 1501.
Taylor, jun., & Prest, 1759.
Munson (*Clark*), 1760.
Smith & Coventry, 1812.
Mills (*Lewis*), 1882.
Hughes (*Hughes*), 1931.
Revell & Collin, 1992.
Clayton & Shuttleworth, 2001.
Johnson (*Lobdell*), 2348.
Lake (*Hershey, Geer, Dudley & Gaggin*), 2467.
Marshall, 2790.
Alexander, 2916.
Simon (*Egan*), 3141.
Leonardt (*Klosak*), 3470.

Beating carpets. *See* "Carpet beaters."

Bed hangings. *See* "Upholstery."

Beds and mattresses. *See* "Upholstery."

Bedsteads. *See* "Furniture."

Beer. *See* "Brewing."

Beer engines:
Jackson, 489.
Stapfer & Sinclair, 1203.
Andrews, 1891.

Beeswax. *See* "Wax."

Beetling machines. *See* "Finishing."

Bells; ringing bells:
Welch, 3.
Little, 38.
Harley, 68.
Haseltine (*Small*), 124.
Duxbury, 988.
Clark (*Brown & Miles*), 1026.
Lake (*Foote & Randall*), 1474.
Lake (*Myers*), 1509.
Walcker, 1632.
Harrison, 1635.
Bennett (*Stocks*), 1800.
Morris & Edwards, 1890.
Gedge (*Le Bret*), 2171.
Wheatstone & Stroh, 2172.

Bells, &c.—*cont.*
Miller, 2405.
Veillet & Verny, 2441.
Miles, 2472.
Wier, 2585.
Davis, 2595.
Zanni, 2721.
Voice, 3444.

Belts and bands for wear:
Wilson, 534.
Brough, 1343.
Lake (*McDaniel*), 1355.
Nash, 1419.
Pulvermacher, 1460.
Wall, 1824.
Brewer (*Edard & Bazault*), 1947.
Cocking, 2353.
Gedge (*Pavel*), 2490.
Cooley, 3054.
Prosser, 3251.
Cocking, 3283.
Davies, 3469.

Belts for machinery. *See* "Bands."

Bending and shaping metals. *See* "Metals (forging)."

Bending wire. *See* "Wire-working."

Bicycles. *See* "Velocipedes."

Billiards and billiard tables:
Benson (*Gardner & Turrell*), 332.
Wright, 1549.
Newton (*Newell*), 2287.
Mawson, 3308.
Barrett, 3378.

Binders for sewing-machines. *See* "Sewing."

Binding and securing papers. *See* "Files and clips."

Binding books. *See* "Book-binding."

Bird cages:
Ford, 408.

Biscuits. *See* "Bread."

Bitumen. *See* "Asphalt."

Black lead. *See* "Plumbago."

Blacking for metal founders:
Sellars, 1817.

Blankets:
Newton (*Graham*), 1035.
Rydill, 2752.
Clark (*Dubois*), 3152.

Blast-engines. *See* "Blowing."

Blasting; fuses for blasting:
Welch, 776.
Briggs, 1584.
James, 2045.
Kleritj, 2335.
Watteeu (*De Terré & De Mercader*), 2715.
Dunn, 2748.
Haseltine (*Shelley & Bullock*), 3270.

Bleaching fabrics and yarns:
Kirkham, Ensom & Spence, 645.
Whitehead, 1113.
Brierley, 1277.
Pearson, 1583.
Pearson, 1590.
Mason, jun., 1722.
Rydill, 2752.
Rydill, 2753.
Rydill, 2754.
Wright, Pendlebury & Ainsworth, 3034.

**Bleaching paper and pulp:**
Smith & Granville, 365.
Riddell, 923.
Lake (*McConnell*), 1015.
Paterson, 1071.
Brierley, 1277.
Mason, jun., 1722.
Torrance & Torrance, 1833.
Riddell, 1839.
Burton, 2252.
Granville, 2617.
Riddell, 3303.

**Bleaching powders:**
Deacon, 691.
Doble, 1077.
Königs, 1305.
Larkin, Leighton & White, 1357.
Glover & Goodman, 1385.
Hargreaves & Robinson, 1854.
Deacon, 1908.
Anderson, 2134.
Smith (*Du Motay*), 2232.
Leather, 2308.
Weldon, 2963.
Henderson, 3080.
Hargreaves, 3192.
Knight, 3261.

**Blinds or sunshades.** *See* "Window-blinds."

**Blocks for printing.** *See* "Printing."

**Blood (treating).** *See* "Manure."

**Blooming iron.** *See* "Metals (rolling)."

**Blotting pads:**
Flack, 784.
Ellis & Aubertin, jun., 1213.
Kearns, 2605.

**Blowing-engines:**
Galloway & Beckwith, 247.
Lake (*Peters*), 1007.
Hydes & Bennett, 1162.
Clarke, 1407.
Anderson, 2326.
Smith, 2507.
Ellis, 2626.
Wightman, 3487.

**Blue vitriol:**
Doble, 1077.

**Boats.** *See* "Ship-building."

**Bobbins; spools; cop tubes:**
Nasmith, 48.
Tullis, 485.
Hughes (*Snoeck*), 920.
Suggitt, Court & Court, 1254.
Livsey (*Merrick*), 1778.
Brode & Bash, 1786.
Kuttner, 1875.
Curtis & Rhodes, 2154.
Southwell, 2265.
Hughes (*Snoeck*), 2581.
Lamb, 3089.

**Bodices.** *See* "Stays."

**Boilers (domestic):**
Vogan, 37.
Russell, 43.
Randell, 63.
Jennings, 400.
Cannell, 436.
Glaskin, 492.
Kendall, 738.
Lumby, 854.
Lake (*Winkler & Zitowitsch*), 943.
Newton (*Graham*), 1035.
Green, 1301.
Sinclair, 1930.
Hodges, 2178.
Leadbetter, 2290.
Murdoch, 2445.
Muratori, 2521.
Gent, 3162.
Verity & Verity, 3341.

**Boilers (horticultural):**
Mee, 315.
Cannell, 436.
Lumby, 854.
Oram, 1183.
Green, 1301.
Simpson, 2009.
Machen, 2921.
Gent, 3162.
Verity & Verity, 3341.

**Boilers (stopping holes in):**
McCool, 3193.

**Boilers for bones, cattle food, &c.:**
Sinclair, 1930.
Amos, 2245.

**Boilers for steam-engines.** *See* "Steam-boilers."

**Boilers for treating wood:**
Brown, 2466.

**Bolts; blank bolts:**
Snowdon, 97.
Johnson (*Wheeler*), 388.
Seekings, 1256.
Rogers, 1280.
Galloway, 1628.
Bell, 2297.
Davies & Leyland, 2622.
Lecloux, 2842.
Fairbairn, 2979.
Lake (*Bell*), 3052.
English, 3211.
Bentall, 3307.

**Bone black (substitute for):**
Dawlings (*Brough & Gilson*), 1406.

**Bones, horn and ivory:**
Morfit, 987.
Clark (*Rice & Driggs*), 1009.
Irvine & Johnson, 1064.
Laycock, 1310.
Sinclair, 1930.
Townsend, 1996.
Knab, 2056.
De La Peyrouse, 2260.
Zengeler, 2325.
Evans, 2619.
Smith, 2784.
Greenhill, 2789.
Hughan, 3060.
Marshall, 3119.
Johnson (*Muller*), 3289.

**Bonnets.** *See* "Hats," &c.

**Bookbinding:**
Davies, 137.
Booth, 2850.
Galland (*Muratori*), 3227.

**Books; bookcases:**
Hogg, 811.
Blackburn, 1767.
Gardner (*Mauger*), 2486.
Pinder, 2519.
Kearns, 2605.
Hughes, 2675.
Briggs, 2971.
Miccio, 3042.

**Boot and shoe laces and fastenings:**
Weston, 2069.
Lake (*Saunders*), 2671.

**Boots and shoes (cleaning):**
Townsend, 1996.
Simpson, 2390.

**Boots, shoes and slippers:**
Ellis & Gilbert; 52.
Mills (*Schwartz*), 190.
Clegg, jun., & Clegg, 226.
Lake (*Warth & Jobbins*), 293.
Turner, 295.
Ellis, 322.
McDonald, 347.

**Boots, &c.—*cont.***
Spear, 763.
Mills (*Goodyear, jun.*), 937.
Johnson (*Wells*), 949.
Lake (*Prusha & Wales*), 1073.
Townsend (*Goddu*), 1079.
Ellis, 1176.
Southan, 1377.
Palliser, 1433.
Podmore & Podmore, 1458.
Pulvermacher, 1460.
Clarke (*Clarke*), 1527.
Lake (*Hidden*), 1653.
Saunders, 1835.
Lake (*Lambert*), 1903.
Fessey, 1946.
Galloway, 1958.
Andrews, 2130.
Newby, 2133.
White & White, 2148.
Mignot, 2236.
Talcott, 2239.
Davis & Struthers, 2256.
Denempont & Denempont, 2333.
Lake (*Woodley*), 2485.
Gedge (*Goffe & Jouan, jun.*), 2503.
MacCarthy, 2550.
Wheble, 2704.
MacLaren, 2744.
Brown, 2854.
Mills, 2899.
Briggs, 2971.
Smyth, 3166.
Gedge (*Petit*), 3173.
Sims, 3185.
Hughes (*Kuhlmann*), 3214.
Galland (*Muratori*), 3227.
Lake (*Blake*), 3323.
Wass, 3370.
Gale & Boyden, 3376.
Kilpatrick & Cooke, 3394.
Bex & Morris, 3479.

**Bordering cards, envelopes and paper:**
Parkins, 1888.

**Boring, drilling, rifling and punching:**
Blomerley, 40.
Snowdon, 97.
Winter, 313.
Parker, 407.
Balme & Crossley, 424.
Ball, 445.
Macdermott & Williams, 468.
Smith, 506.
Haseltine (*Morrison*), 578.
Tenwick, 626.
Smith, 808.
Welch, 840.
Frewer, 887.
Nixon & Winterbottom, 970.
Tamin, 989.
Appleby, 1072.
Bradley, 1075.
Baker (*Bell & Gisborne*), 1218.
Seekings, 1256.
McKay & Macgeorge, 1371.
Clark (*Smith, Carver & McCune*), 1441.
Robertson, 1528.
Briggs, 1584.
Fawcett, 1595.
McNabb, 1607.
Sumner & Waldenström, 1944.
Du Vallon, 1951.
Sprague (*Thorne*), 1974.
Klerity, 2032.
Hyatt, 2116.
Pollock, 2117.
Balme & Crossley, 2139.
Priqueler, 2255.
Milbank, 2283.
Pollock & Pollock, 2322.
Pollock & Pollock, 2328.
Gowans, 2343.
Ripley, 2371.
Griffin (*Chadborn & Coldwell*), 2397.
Davies & Leyland, 2622.
Darlington, 2657.
Bowker, 2692.
Swan, 2785.

**Boring, &c.—*cont.***
Watteau (*François & Dubois*), 3004.
Smith (*Le Mat*), 3224.
Witzenmann, 3266.
Haseltine (*Shelley & Bullock*), 3270.
Bentall, 3307.
Thomson, 3369.
Kelley, 3498.

**Boring, probing and searching for coal, minerals, oil, water, &c.**
Boyd (*Meulen*), 263.
Dunn, 2748.

**Bosses used on spinning machinery:**
Parnacott, 2057.

**Bottle and other protectors:**
Alcorn, 2227.
Alcorn, 3501.

**Bottle cases or cabinets:**
Chapman, 191.
Saul, 1022.
Bertin, 3118.

**Bottle stoppers and capsules:**
Butler, 232.
Rattray, 346.
Foster, 466.
Paterson, 724.
Delavigne, 984.
Sweetser, 1064.
Stocker, 1149.
Musgrave, 1429.
Putnam, 1439.
Pilgrim & Eli, 1588.
Templeton, 1592.
Granville (*Granville*), 1970.
Codd, 2212.
Street, 2376.
Minasi, 2404.
March, 2452.
Kilner & Kilner, 2882.
Cotterell, Prudencio & Wilcocks, 2945.
Baranowski & Skwarcow, 3021.
Paterson, 3213.
Spear, 3286.
Pritchard, 3320.
Eli, 3401.
Barrett & Elers, 3484.

**Bottles; flasks; filling and withdrawing from bottles:**
Jacob, 153.
Foster, 466.
Connolly (*Gregory*), 871.
Saul, 1022.
Stocker, 1149.
Musgrave, 1429.
Blunn & Wild, 1504.
Pilgrim & Eli, 1588.
Rawlings, 1684.
Bonneville (*Bertrand*), 2095.
Codd, 2212.
Minasi, 2404.
Brooke, 2447.
March, 2452.
Muratori, 2521.
Hall, 2663.
Kilner & Kilner, 2882.
Langford, 2928.
Cotterell, Prudencio & Wilcocks, 2945.
Barns, 2966.
Millard, 3151.
Eli, 3401.

**Bottles (sealing):**
Newton (*Graham*), 1035.

**Box irons.** *See* "Ironing."

**Boxes; chests; cases; packages:**
Pocock, 87.
Avery, 101.
Baylis, 106.
Mills, 224.
Welch & Laight, 290.

**Boxes, &c.—*cont.***
Hughes (*Wells*), 606.
Western, 616.
Dee, 863.
James, 1133.
Loomes, 1198.
Welch & Laight, 1287.
Baker, 1317.
Avery, 1322.
Tubbs, 1463.
Templeton, 1592.
Target, 1847.
Avery, 2099.
Clark (*Tyrrell*), 2161.
Robinson, 2262.
Hulme, 2361.
Gardner (*Mauger*), 2486.
Rollason & Brough, 2524.
Bernard, 2637.
Hall, 2663.
Rollason & Brough, 2820.
Mills (*Heyl*), 2835.
Booth, 2850.
Bell, 3083.
Bertin, 3118.
Morris & Davis, 3123.
Chase, 3138.
Perry, 3144.
Widgery, 3149.
Ricketts, 3163.
Barrett, 3378.

**Bracelets:**
Richards, Lawrence & Lingard, 935.
Lake (*Brown, jun. & Burton*), 1128.
Brewer (*Edard & Bazault*), 1947.
Littlehales, 1995.
Allanson & Pearson, 2078.

**Braces or suspenders:**
Wilson, 534.
Johnson (*Wells*), 949.
Brough, 1343.
Lake (*McDaniel*), 1355.
Eddy, 1548.
Parker, 2970.
Prosser, 3251.

**Brackets:**
Blackburn, 1767.
Clayton & Shuttleworth, 2001.
Clark (*Green*), 2331.
Mathews, 2534.
Brannon, 2703.

**Bran:**
Dahne & Hughes, 81.

**Brattice cloths:**
Briggs, 2971.

**Bread and biscuits:**
Lloyd, 514.
Purvis, 734.
Harding (*Gray*), 916.
Cheesbrough (*Gray*), 1278.
Granger & Hyan, 1381.
Chadwick, 1479.
Edwards, 1802.
Fordred, 1917.
Kaiser, 2068.
Norton, 2571.
Clark (*Tamis*), 2631.
Milburn & Browning, 2696.
Carter, 2826.
Wylam, 3093.
Widgery, 3149.
Johnson (*Muller*), 3289.

**Bread and other crumbs (forming):**
Hancock & Hancock, 3353.

**Breaking stone.** *See* "Stone breakers."

**Breaking sugar.** *See* "Cutting."

**Breaks for carriages and railways; stopping trains:**
Fell, 1.
Hodson & Hill, 31.
Bouch, 64.
Clark, 128.

**Breaks for carriages, &c.—*cont.***
Cockshoot, jun., Wrigley & Weatherill, 179.
Boehringer & Krall, 214.
Unwin, 405.
Gore, 501.
Wright, 516.
Baxter, 547.
Newton (*Schettler*), 610.
Hargreaves & Rostron, 618.
Kesterton, 706.
Prager, 739.
Biddulph, 1070.
Pierce, 1125.
Naylor, 1245.
Fell, 1246.
Fleming, 1397.
Osborne & Cotton, 1494.
Shaw, 1497.
Cartwright, 1872.
Rogers, 1927.
Pidding, 2053.
Larsen, 2165.
Lake (*Utley & Ross*), 2238.
Broughton & Stephens, 2341.
Miller, 2405.
Westinghouse, jun., 2436.
Blaine, 2544.
Pécaud, 2546.
Westinghouse, jun., 2684.
Clark (*Herrmann*), 2852.
Pidding, 2873.
Webb, 2884.
Naylor, 3088.
Lepage, 3216.
Holmes & Taylor, 3427.

**Breaks for machinery:**
Leask, 127.
Roberts & Shaw, 172.
Richards, 239.
Macdermott & Williams, 463.
King, 629.
Mitchell, 665.
Briggs, Willan & Lewis, 914.
Hughes (*Snoeck*), 920.
Mills (*Goodyear, jun.*), 937.
Heyes & Entwistle (*Cummings*), 1119.
Clarke & Hughes, 1461.
Seed, 1483.
Wilson (*Wilson & Hunter*), 1912.
Hughes (*Hughes*), 1931.
Brown, 2253.
Brown, 2529.
Kilner, 2543.
Hughes (*Snoeck*), 2581.
Walker, 2674.
Neale, 2950.
Blakey, 2978.
Lafferty & Lafferty, 3322.
Newton (*Otis & Otis*), 3430.
Johnson (*Colton*), 3507.
Moffatt, 3528.

**Breakwaters, sea walls and foreshores:**
Cochrane, 520.
Galloway, 1628.
Skinner, 1795.
Croskey (*McKinley*), 1842.
Aitken, 1886.
Cochrane, 2120.
Brannon, 2703.
Petersen, 3324.
Leigh, 3411.

**Breast pads:**
Brewer (*Edard & Bazault*), 1947.

**Breastplates:**
Wetmore, 100.
Mac Dowall, 965.
Gedge (*Yautier*), 2203.

**Bretelles or pantaloon suspenders.** *See* "Braces."

**Brewing and fermenting; treating beer:**
Barker & Bean, 114.
Paget & Asher, 511.
Rennie, 541.
Gillman & Spencer, 607.

**Brewing, &c.—*cont.***
Halliday, 962.
Steel & Wilson, 975.
Mills (*Hutchinson*), 1044.
Garton, 1232.
Von Bolzano, 1349.
Granger & Hyan, 1381.
Smith, 1390.
Turnock, 1480.
Curtis, 2040.
Johnson (*Leconte*), 2082.
Matthews, 2101.
Pasteur, 2226.
Leadbetter, 2290.
Willison, 3026.
Gregory, 3200.

**Bricks, tiles and building-blocks:**
Lake (*Gard & Gard*), 70.
Wade & Cherry, 74.
Fawcett & Shackleton, 269.
Farrell, 317.
Morand, 325.
Murray, 336.
Sherwood, 551.
Pollock, 623.
Hollins, 682.
Wilson, 717.
Newton (*Spencer*), 907.
Riddell, 923.
Descamps & Breh, 941.
Nichols & Batley, 967.
Newton (*Graham*), 1035.
Wrigley, 1069.
Bennett, 1115.
Bird, 1193.
Jackson, 1308.
Chadwick, 1479.
Bennett, 1557.
Large, 1692.
Skinner, 1795.
Moffatt & Henley, 1827.
Gedge (*Creissard, Bros.*), 1864.
Richardson, 2155.
Douglas & Watson, 2158.
Emmens, 2188.
Lake (*Cantwell*), 2226.
Zenger, 2247.
Gillespie, 2429.
Davey, 2553.
Goreham, 2588.
Brannon, 2703.
Elliott, 2730.
Welsh, Hope & Stevenson, 2761.
Pollock, 2809.
Claus, 2906.
Johnson (*Sebille*), 2908.
Bates, 2912.
Williams, 2959.
Lürmann, 3006.
Johnson, 3032.
Large, 3167.
Payne, 3273.
Johnson (*Muller*), 3289.
Stanley & Stanley, 3291.
Jupp, 3338.
Williams, 3519.

**Bridges; viaducts; draw bridges:**
Snowdon, 97.
Allen, 255.
Phalp, 301.
Johnson (*Wheeler*), 388.
Radford, 560.
Kennard, 582.
Parkyns, 860.
Descamps & Breh, 941.
Pavy, 1325.
Granville, 1506.
Griffiths, 1522.
Hyatt, 2119.
Cochrane, 2120.
Clark (*Robinson*), 2230.
Brannon, 2703.
Roberts, 2907.
Touaillon (*André & Fleury*), 3199.
Jupp 3338.
Tweddell, 3358.
Leigh, 3411.

**Bristles (substitutes for):**
Shaw & Shaw, 1828.
Stauf, 2294.
Evans, 2619.

**Bromine:**
Clark (*Aubertin*), 1181.
Morris (*Pellieux & Mazé-Launay*), 3448.

**Bronzing, gilding and silvering fabrics, paper, &c.:**
George, 1152.
Casthelaz & Depoully, 1879.

**Brooches:**
Swain, 669.
Hart, 930.
Richards, Lawrence & Lingard, 935.
Littlehales, 1995.
Jacob, 3111.
Selfe, 3389.

**Brushes, brooms, dusters and whisks:**
Burman, 545.
Kent, 614.
Edwards, 761.
Newton (*Assmann*), 867.
Frewer, 887.
Breach, 961.
Winn, 966.
Bradley, 1075.
Warrington & Minton, 1080.
Aitken, 1529.
Shaw & Shaw, 1826.
Hughes, 1983.
Stauf, 2294.
Simpson, 2390.
Newton (*Rogers, Wilkins & Harvey*), 2501.
Evans, 2619.
Elce & Macpherson, 3425.

**Buckets for shipping and unshipping coal, grain, &c.** *See* "Ships' cargoes."

**Buckles and clasps:**
MacMillan, 3062.
Hall, 3106.

**Buffers:**
De Kierzkowski, 193.
Waller, 770.
Paget (*Lemoine*), 1257.
Simon (*Egan*), 3141.
Smith (*Messrs. Tiranoff & Kousakoff*), 3164.

**Builders' hoists and scaffolds:**
Law & Bennison, 1312.
Lake (*Scott*), 1503.
Dietrichson, 2476.
Gurrin, 2766.

**Buildings:**
Johnson (*Wheeler*), 388.
Hanson, 402.
Cochrane, 520.
Radford, 560.
Descamps & Breh, 941.
Bird, 1193.
Ratcliff, 1221.
Carpenter, 1279.
Chadwick, 1479.
Hyatt, 1482.
Griffiths, 1522.
Lee & Rogers, 1597.
Galloway, 1628.
Newton (*Brennan*), 1743.
Farrel, 1761.
Croskey (*McKinley*), 1842.
Gedge (*Creissard, Bros.*) 1864.
Hyatt, 2119.
Newton (*Hayes*), 2210.
Livesey, 2385.
Bunning & Chapman, 2402.
Neilson, 2483.
Muratori, 2521.
MacCarthy, 2550.
Turner, 2572.
Hughes, 2675.

**Buildings—*cont.***
Brannon, 2703.
Homan, 2731.
Vivien & Vivien, 2823.
Hornblower, 2848.
Rendle & Burrows, 3002.
Barnsley & Barnsley, 3003.
Dunn, 3005.
Holmes, 3015.
Hyatt, 3124.
Touaillon (*André & Fleury*), 3199.
Austin & Ellis, 3219.
Jupp, 3338.
Tweddell, 3358.
Pender & Rae, 3398.

**Buoys:**
Stoner, 731.
Newton (*Godfrey*), 2393.
Davis, 2595.
Hay, 2855.
McCool, 3193.

**Burning lime.** *See* "Cement."

**Burning smoke.** *See* "Smoke prevention."

**Burnishing.** *See* "Polishing."

**Bustles.** *See* "Dresses."

**Butter:**
De La Peyrouse, 2260.

**Butter dishes and coolers:**
Wall, 1824.
Bousfield (*Goddard & Adams*), 2064.

**Button holes:**
Helwig, 13.
Pruyn, 814.
Johnson (*Wells*), 949.
Lake (*Smith*), 1058.
Galloway, 1347.
Lake (*Moreau & Isaacs*), 2065.
Talcott, 2239.
Wilson, 2633.
Walker (*Powell*), 2648.
Kallmeyer, 2827.

**Buttons; studs, &c.:**
Freeman, 882.
Hick, 1346.
Newton (*Thompson*), 1362.
Tubbs, 1463.
Wall, 1824.
Pratt (*Farmer & Hatcher*), 1861.
Durand, 2010.
Allanson & Pearson, 2078.
White & White, 2148.
MacMillan, 3062.
Jacob, 3111.
Wier, 3210.

## C.

**Cables.** *See* "Ropes."

**Cables for telegraphs.** *See* "Telegraphs."

**Cabs.** *See* "Carriages."

**Calcining lime.** *See* "Cement."

**Calcining or roasting ores.** *See* "Metals (smelting)."

**Calcium and its compounds:**
Irvine & Johnson, 1084.
Mactear, 2374.

**Calculating:**
Newton (*Allen & Allen*), 1252.
Lefevre, 1665.
Sellers & Hopkinson, 2816.

Calendering fabrics. *See* "Finishing."

Camels. *See* "Raising ships."

Cameras:
Holmes, 447.
Holmes, 2184.
Stillman, 3069.

Camp and field equipage:
Cooke, 94.
Henry (*De Laterrière*), 464.
Sanders, 837.
Lafage, 990.
Turner, 1367.
Warry, 2316.
Brannon, 2703.
Leatham, 2726.
Durham, 3038.
Frazer & Dillon, 3435.

Cams used in signalling:
Stevens, 2713.

Canal boats (propelling). *See* "Propelling ships."

Canals and canal locks:
Anderson, 24.
Lungley, 210.
Descamps & Breh, 941.
Trevithick, 1575.
Bazin, 2289.
D'Humy, 3041.

Cancelling stamps. *See* "Stamps."

Candle wicks. *See* "Wicks."

Candles:
Sterry, 95.
Field, 122.
Mines & Evans, 387.
Toepler, 1052.
Field, 1763.
De La Peyrouse, 2260.
White (*Beurle & Ujhely*), 2364.
Pickering, 2584.
Pickering, 2796.
Field & Cotton, 3078.
Ascough, 3478.

Candlesticks. *See* "Lamps."

Canisters:
Templeton, 1592.

Canopies. *See* "Awnings."

Cans:
Pumphrey, 330.
Bernard, 2637.
Widgery, 3149.
Jones, 3186.

Caoutchouc. *See* "India-rubber."

Caps and hats. *See* "Hats."

Capsules. *See* "Bottle stoppers."

Carbonic acid. *See* "Acids."

Carburetting air:
Haseltine (*Dupas & Barbarin*), 452.
Haseltine (*Dupas & Barbarin*), 472.
Hancock & Pearse, 2025.
Clark (*Moussard*), 3416.

Cardboard. *See* "Paper making."

Carding buttons. *See* "Buttons."

Carding fibrous materials. *See* "Spinning (carding)."

Cards and card-cases:
Avery, 101.
Akin, 515.
Avery, 1322.
Norris (*Barnaby*), 1526.
Goodall (*Mauger*), 1880.
Parkins, 1888.
Gardner (*Mauger*), 2486.
Boston, 3327.

Cargo or contents of ships (weighing). *See* "Weighing."

Cargoes (shipping and discharging). *See* "Ships' cargoes."

Carpet beaters, stretchers and linings:
Clark (*Hankinson*), 5.
Haseltine (*Harrington*), 1399.
Blick & Bishop, 2167.
Lake (*Garrick*), 2699.
Lake (*Pease*), 3102.

Carriage curtains:
Chapman, 3489.

Carriage turnstiles and counters:
Harding, 323.
Tronchon, 3016.
Starr, 3201.

Carriage wheels. *See* "Wheels for carriages."

Carriages, cabs, omnibuses, waggons, carts and trucks:
Archer, 107.
Benson (*Gardner & Turrell*), 332.
Pilkington, 421.
Doeg, 544.
Ullithorne, 591.
Maythorn, 601.
Gedge, 719.
Fox & Evans, 836.
Nunn, 912.
Lenny, 958.
Hamilton & Sax, 1027.
Gurrin, 1091.
Todd, 1110.
Gardner, Lowe, Wood, Wood & Pickering, 1249.
Thompson, 1270.
Lake (*McDaniel*), 1355.
Stokes, 1359.
Ayshford, 1384.
Johnson (*Warden*), 1387.
Pugin & Ayres, 1408.
Nicholls, 1447.
Wilson, 1625.
Storer (*Cameron*), 1663.
Parkin, 1677.
Greig & Burton, 1782.
Brown, 1784.
Rowan, 1808.
Haddan, 1953.
Warsop, 1972.
Hart, 2017.
Pidding, 2053.
Thomas, 2067.
Smith (*Clarke*), 2126.
Greaves, 2224.
Miller, 2405.
Bresson, 2407.
Sanders, 2465.
Lake (*Hershey, Geer, Dudley & Gaggin*), 2467.
Neilson, 2483.
Aldebert, 2492.
Smith (*Folacci*), 2493.
Neale, 2618.
Nunn, 2638.
Clift, 2673.
Leatham, 2726.
Gurrin, 2766.
Wright, 2860.
Smith (*Messrs. Tiranoff & Kousakoff*), 3164.
Harding, 3194.
Starr, 3201.
Lepage, 3216.
Galland (*Muratori*), 3227.
Hughes (*Coit*), 3313.
Cooper, 3404.
Taber (*Potter*), 3417.
Wood, 3419.
Lake (*Jenkins & Jenkins*), 3439.
Bayley, 3457.
Wood, 3522.

Carriages, &c. (loading and unloading):
Carpenter, 1279.
Meiklejon, 1402.
Lee, 1521.
Clark (*Corbin*), 1676.
Wilkerson, 1869.
Bulkeley, 2305.
Hulme, 2361.
Smith (*Folacci*), 2493.
Thompson, 3039.
Wilkerson, jun., 3137.
Cooper, 3404.
Johnson (*Colton*), 3507.

Carriages for conveying flexible tubing:
Haynes & Haynes, 1780.

Carriages for railways. *See* "Railways."

Cartridge extractors:
Russ, Morris, Hammond & Hammond, 766.
Rigby, 1098.
Newton (*Marshall*), 1114.
Lake (*Kerr & Brydges*), 1647.
Tranter, 2509.

Cartridges and cases:
Aramburu (*Reinlein*), 84.
Fitz-Maurice, 409.
Buttery & Pashley, 451.
Hughes (*Wells*), 608.
Restell, 639.
Russ, Morris, Hammond & Hammond, 766.
Hunt (*Bohman*), 1061.
Rigby, 1098.
Tongue (*Fouque*), 1180.
Muschamp, 1326.
Wilson (*Berdan*), 1425.
Richards, 1572.
Jones, 1617.
Harding, 1662.
Wilson (*Berdan*), 1718.
Manceaux, 1811.
Jones, 2097.
Milbank, 2283.
Kleritj, 2335.
Soper, 2359.
Tooth, 2454.
Muratori, 2521.
Jones, 3018.
Widgery, 3149.
Smith (*Broadwell*), 3274.
Wallis, 3318.

Carts. *See* "Carriages."

Cask and barrel tilters:
Knight, 2059.
Pearson, 2113.

Casks:
Wilson, 278.
Rattray, 348.
Wilson, 793.
West, 835.
Newton (*Graham*), 1035.
Lyle, 1554.
Furlong, 2484.
Gedge (*Quiri*), 2491.
Smith, 2946.
Dunbar, 3231.

Casks (tapping and venting):
Pilgrim & Eli, 1588.
Andrews, 1891.
Shore, 2215.
Cole, 2650.
Howlett, 2716.
Stapfer & Sinclair, 2837.

Casters:
Benson (*Gardner & Turrell*), 332.
Hughes (*Sargent*), 1640.
Eastman, 1870.

**Casting and moulding metals.** *See* "Metals (casting)."

**Casting and moulding plastic materials:**
Wrigley (*Greiff*), 58.
Fawcett & Shackleton, 269.
Sherwood, 551.
Hughes (*Wells*), 608.
Newton (*Jenty*), 750.
Robinson, Robinson & Skinner, 1121.
Stocker, 1149.
Livsey (*Florence Manufacturing Co.*), 1304.
Libbey (*Bowie*), 1570.
Clifford, 1598.
Libbey (*Bowie*), 1664.
Large, 1692.
Willson, 1772.
Parnacott, 2057.
Parnacott, 2070.
Whieldon, Hays & Hays, 2100.
Newby, 2133.
Richardson, 2155.
Cocking, 2295.
Gillespie, 2429.
Sowerby, 2433.
Muratori, 2521.
Landry, 2601.
Elliott, 2730.
Thompson, 2802.
Clark (*Plasse*), 2879.
Brown, 2888.
Johnson (*Sebille*), 2908.
Williams, 2959.
Hyatt, 3022.
Norman, 3029.
Large, 3167.
Payne, 3273.
Whitehead, 3362.
Bex & Morris, 3479.

**Catalogues.** *See* "Indexes."

**Cattle food.** *See* "Food for cattle."

**Cattle trucks:**
Wilson, 991.
Wilson, 1950.
Lake (*Calkins*), 2044.
Welch, 2303.
Bulkeley, 2305.

**Ceilings:**
Lake (*Kemmer*), 234.
Tysall, 308.
Descamps & Breh, 941.
Tall, 1001.
Bird, 1193.
Chadwick, 1479.
Hyatt, 1482.
Hyatt, 2119.
Neilson, 2483.
Muratori, 2521.
Turner, 2572.
Brannon, 2703.
Bates, 2912.

**Cellulose used as paper pulp.** *See* "Paper."

**Cement, burning lime:**
Goreham, 385.
Bessemer, 386.
Cochrane, 520.
Bramwell, 657.
Hennis, 703.
Wright, 723.
Pout (*Rolls*), 745.
Newton (*Graham*), 923.
Newton (*Graham*), 1035.
Wrigley, 1069.
Crease, 1186.
Hyatt, 1482.
Gedge (*Robin, jun.*), 1558.
Templeton, 1592.
Jensen (*Brichsen*), 1690.
Brown, 1838.
Fenton, 1897.
Dann (*Ahrens*), 2237.
Scott, 2243.
Patterson & Patterson, 2354.

**Cement, &c.—*cont.***
Davey, 2553.
Goreham, 2588.
Scott, 2660.
Milburn & Browning, 2696.
Burge, 2722.
Holmes, 3015.
Hughan, 3060.
Johnson (*Muller*), 3289.
Reid, 3454.

**Centrifugal machines:**
Torrance & Torrance, 1833.
Lafferty & Lafferty, 3322.
Hepworth, 3375.

**Ceramic wares.** *See* "Earthenware."

**Cesspools and laystalls:**
Williams, 2186.

**Chaff cutters:**
Doeg, 544.
Erskine & Harrop, 960.
Newton (*Grimaldi*), 2579.

**Chaff houses.** *See* "Granaries."

**Chains; chain cables; shackles**
Johnson (*Wheeler*), 388.
Henderson, 397.
Betteley, 563.
Perkins, 1379.
Pulvermacher, 1460.
Liardet, 2013.
Newton (*Godfrey*), 2393.
Kilner, 2543.
Hall, 3106.
Goubet & Monrocq, 3506.

**Chains and guards:**
Allanson & Pearson, 2078.
Witzenmann, 3266.
Dolby, 3299.

**Chairs for railway rails.** *See* "Railways (permanent)."

**Charcoal and coke:**
Eveleigh, 446.
Roberts, 524.
Barclay, 673.
Aitken & McAlley, 1337.
Taylor, 1380.
Sellars, 1817.
Eaton, 1841.
Barclay, 2076.
Whieldon, Hays & Hays, 2100.
Matthews, 2101.
Sellars, 2500.
Still & Lane, 2655.
Hughan, 3060.
Duncan & Robertson, 3197.
Johnson (*Muller*), 3289.
Anderson, 3455.
Anderson, 3456.
Scott, 3515.

**Charcoal box irons.** *See* "Ironing."

**Checking the receipt of money:**
Tatters, 412.
Wright, 621.
Gooding, 978.
Newton (*Slawson*), 1263.
Miller, 2405.
Robinson, 2757.
Calvert, 2776.
Flack, 2898.

**Cheese:**
Newton (*Holdredge, Harrington & Harrington*), 177.
Oatley, 2175.
Carter, 2826.

**Chemicals (packing and carrying):**
Hyatt, 3022.

**Chenille:**
Hughes, 3395.

**Chest protectors:**
Pulvermacher, 1460.

**Chests.** *See* "Boxes."

**Chignons.** *See* "Hair-dressing."

**Chimneys.** *See* "Flues."

**Chisels:**
Wetmore, 100.
Clarke, 171.
Haseltine (*Morrison*), 578.
Snowdon, 744.
Lake (*La Brèche-Viger*), 3246.

**Chlorine and chlorides:**
Kenyon & Swindells, 79.
Lorberg, 244.
Smith (*Du Motay*), 470.
Rowan, 785.
Rowan, 1067.
Doble, 1077.
Irvine & Johnson, 1084.
Tanner, 1147.
Clark (*Aubertin*), 1181.
Königs, 1305.
Larkin, Leighton & White, 1357.
Larkin, Leighton & White, 1518.
Königs & Henderson, 1642.
Deacon, 1682.
Valentin, 1837.
Deacon, 1908.
Hunt, 1918.
Hargreaves & Robinson, 1923.
Hargreaves & Robinson, 1928.
Anderson, 2134.
Weldon, 2170.
Anderson, 2216.
Smith (*Du Motay*), 2232.
Hargreaves & Robinson, 2329.
Mactear, 2374.
Weldon, 2389.
Henry (*De Vauréal*), 2413.
Claudet, 2516.
Deacon, 2667.
Spence, 2832.
Weldon, 2963.
Henderson, 3080.
Hargreaves, 3192.
Knight, 3261.
Riddell, 3306.
Larkin & White, 3311.
Anderson, 3493.

**Chocolate.** *See* "Cocoa."

**Churns:**
Murdoch, 2445.
Haseltine (*Groat, Pond & Cantelow*), 2583.

**Cigar cases and boxes:**
Schwartz & Schwartz, 539.
Dee, 863.
Tribe, 1171.
Boston, 3327.
Henderson (*Courtchoux*), 3520.

**Cigar lights.** *See* "Matches."

**Cigars and cigarettes.** *See* "Tobacco."

**Circular looms.** *See* "Weaving (plain)."

**Circulating liquids:**
Madge (*Effrench*), 176.

**Cisterns, reservoirs and tanks:**
Bolding, Bolding & Titsink, 35.
Warwick, 163.
Waterson, 174.
Blackmore, 188.
Burney, 197.
Jennings, 229.
Balme & Crossley, 424.
Cochrane, 520.
Common, 543.
Tylor, 685.
Hall, 846.
Newton (*Graham*), 1035.

Cisterns, &c.—*cont.*
Johnson (*Warden*), 1387.
Davies, 1716.
Preston, Prestige, Preston & Prestige, 1937.
Galloway, 1958.
Hyatt, 2119.
Roberts, 2135.
Balme & Crossley, 2139.
Westo & Pinder, 2428.
Neilson, 2483.
Lumb, 2630.
Brannon, 2703.
Leatham, 2726.
Mann, 2755.
Barrie, 2804.
Tylor, 2948.
Shanks, 2968.
Barnsley & Barnsley, 3003.
Roberts, 3325.
Jupp, 3338.
Peters & Peters, 3458.

Clamps:
Cotterill & Biddle, 572.
Newton (*Thompson*), 1018.
Lake (*Goodchild*), 1107.
Lake (*Beckwith*), 1201.
Whight (*O'Dell*), 2190.

Clasps. *See* "Buckles."

Classifying coins. *See* "Coins."

Cleaning grain. *See* "Grain and seeds (treating)."

Cleaning lithographic stones. *See* "Printing."

Cleaning pipes. *See* "Tube cleaners."

Cleansing docks. *See* "Docks."

Cleansing fibrous materials. *See* "Spinning (opening)."

Clipping horses, &c. *See* "Shearing."

Clips for papers. *See* "Files and clips."

Clips or fastenings for articles of dress:
McCalla, 2769.
Farwell, 3385.

Clips or shears. *See* "Scissors."

Clocks, watches and time-keepers; winding up clocks; watch protectors:
Cole, 56.
Burnand, 78.
Powell, 634.
Baines, 779.
Thomson, 810.
Soul (*Gehrckens*), 850.
Yonge, 880.
Harman & Mills, 1112.
Morley, Ellis & Rollason, 1182.
Jones, 1275.
Ducommun, 1766.
Rogers, 1921.
Shive, 1990.
Griffin (*Chadborn & Coldwell*), 2397.
Hughes, 3129.
Farwell, 3385.
Leclanché, 3521.

Clod crushers. *See* "Ploughing."

Clogs. *See* "Boots."

Coal-getting, cutting coal. *See* "Mining."

Coal hods and vases:
Cunnold, 3092.

Coal scoops and shovels:
Cunnold, 3092.

Coals (screening.) *See* "Sifting."

Coating and covering leather and cloth:
Lake (*Kemmer*), 234.
Hughes (*Shelton*), 985.
Newton (*Graham*), 1035.
Walker, 1151.
Wright (*Minor & Britton*), 1208.
Lake (*McDaniel*), 1355.
Charles & Taylor, 1738.
Curtis, 2321.
Chase, 3138.
Vickers, 3371.

Coating and covering paper:
Allin, 227.
Wright (*Minor & Britton*), 1208.
Jensen (*Bricheen*), 1690.
Briggs, 2971.
Chase, 3138.

Coating bricks, clay and stone:
Griffiths, 1522.
Behrns, 2304.
Chapman, 2440.
Vivien & Vivien, 2823.
Jupp, 3338.

Coating explosive charges:
Muschamp, 1326.
Jones, 2097.

Coating glass
Muratori, 2521.
Vivien & Vivien, 2823.

Coating metals:
Johnson (*Wheeler*), 388.
Cochrane, 520.
Berwick, 597.
Nurse, 865.
Madge & Jenkins, 954.
Newton (*Graham*), 1035.
Crease, 1186.
Wright (*Minor & Britton*), 1208.
Wilde, 1511.
Griffiths, 1522.
Moffatt, 1611.
Unwin, 1626.
Brough & Fletcher, jun., 1777.
Brown, 1838.
Croskey (*McKinley*), 1842.
Robson & Berwick, 1901.
Madge, 1932.
Bousfield (*Goddard & Adams*), 2064.
Jenkins, 2147.
Haseltine (*Hedden & Hill*), 2166.
Zenger, 2247.
Fearn, 2266.
Baldwin, 2327.
Newton (*Godfrey*), 2393.
Chapman, 2440.
Maitland, 2450.
Taylor, 2473.
Neilson, 2483.
Muratori, 2521.
De Lobstein, 2623.
Hunt (*Stone*), 2652.
De Zuccato, 2883.
King (*Lauder*), 3028.
Gordon, 3070.
Cunnold, 3092.
Allen, 3202.
Gilbertson, 3287.
Jenkins, 3413.
Unwin, 3469.

Coating or covering rollers:
Roeckner, 119.
Knowles & Hetherington, 228.
Thornton, 829.
Brooke, 1118.
Wilson, 1335.
Knowles, jun., 2108.
Heywood, 2720.
Edwards, 2962.
Farmer, 3013.

Coating or covering wire:
Guest & Craddock, 144.
Warren, 537.
Newton (*Graham*), 1035.
Wright (*Minor & Britton*), 1208.
Day, 1364.
Mallock, 1792.
Croskey (*McKinley*), 1842.
Parnacott, 2067.
Lake (*De Wolfe*), 2106.
Davis & Struthers, 2256.
Chapman, 2440.
Arnold & Barraclough, 3012.
Clark (*D'Argy*), 3109.
Petersen, 3324.
Lake (*Hiler*), 3466.

Coating ships' bottoms. *See* "Ships' bottoms (coating)."

Coating wood:
Berwick, 597.
Lambert, 1124.
Crease, 1186.
Wright (*Minor & Britton*), 1208.
Griffiths, 1522.
Lyttle, 1535.
Robson & Berwick, 1901.
Bousfield (*Goddard & Adams*), 2064.
Chapman, 2440.
Furlong, 2484.
Williams, 2787.
Vivien & Vivien, 2823.

Cobalt. *See* "Metals."

Cochineal (packing and preserving):
Joannides & Adutt, 2683.

Cocoa; chocolate:
Fox, 1435.
Clark (*Tamin*), 2631.

Coffee; roasting coffee:
Boyes, 505.
Bass, 3150.

Coffee-pots; obtaining infusions:
Garfield, 1250.
Clark (*D'Argy*), 1727.
Wall, 1824.
Hutchinson, 1906.
Curtis, 2040.
Newell, 2523.
McKenzie & Cameron, 2806.
Bocquet, 3525.

Coffer dams:
Clark (*Walsh*), 1271.

Coffins:
Jones, 1373.
Scruton, 2399.

Coiling and uncoiling flexible tubes:
Haynes & Haynes, 1780.

Coins; coin blanks:
Ball, 1194.
Napier, 1705.

Coke. *See* "Charcoal."

Collars for shirts. *See* "Shirts."

Collodion:
Lake (*Hyatt, Hyatt, junior & Perkins*), 1025.
Wright (*Minor & Britton*), 1208.

Colouring or staining cements, clay, ivory, marble, &c.:
Zengeler, 2325.
Davey, 2553.

**Colouring or staining paper:**
Ashcroft, 2291.
Ashcroft, 3512.

**Columns; pillars; pilasters:**
Johnson (*Wheeler*), 388.
Bird, 1193.
Robertson, 1528.
Lee & Rogers, 1597.
Neilson, 2483.
Davey, 2553.
Brannon, 2703.
Tonaillon (*André & Fleury*) 3199.
Leigh, 3411.

**Combing fibrous materials.** *See* "Spinning (carding)."

**Commodes.** *See* "Waterclosets."

**Communicating apparatus.** *See* "Signals."

**Compasses for ships; field compasses:**
Punshon, 820.
Solomons, 847.
Bassnett, 1860.

**Composition oils or liquids for illuminating purposes.** *See* "Oils."

**Compositions for road making.** *See* "Roads."

**Concentrating light of gas-burners.** *See* "Gas-burners."

**Concentrating ores.** *See* "Metals (smelting)."

**Concentrating saline solutions:**
Chance (*Gridley*), 1243.

**Concrete.** *See* "Stone."

**Condensers and condensing:**
Larkin & White, 23.
Hydes, Bennett & Bennett, 54.
Tommasi, 175.
Porter & Lane, 201.
Clark (*Ellis*), 261.
Eveleigh, 443.
Kaeuffer, 644.
Rock, 876.
Jackson, 972.
Greig & Eyth, 980.
Norfolk, 1046.
Hughes (*Hughes*), 1230.
Schmitz, 1724.
Philpot (*Lucovich*), 1779.
Perkins, 1822.
Newton (*Wright*), 1850.
Weir (*Weir*), 1936.
Grantham, 1991.
Neilson, 2483.
Wallis & Steevens, 2537.
Jackson, 2812.
Perkins, 2819.
Alison, 2900.
Willison, 3026.
Parsell, 3207.
Körting, 3225.
Johnson (*Westerman*), 3423.

**Condiment cases:**
Wright, 1403.
Clark (*Decoudun*), 2791.

**Conducting fluids.** *See* "Pipes."

**Confectionery:**
Lloyd, 514.
Gedge (*Dujour & Couppé*), 1645.
Long, 2563.
Landry, 2601.
Clark (*Tamin*), 2631.
Campion, 2894.

**Conservatories.** *See* "Horticulture."

**Consuming smoke.** *See* "Smoke prevention."

**Contacts (electric) for clock-work.** *See* "Electricity."

**Cooking:**
Ritchie, 185.
Crichley, 478.
Eyton, 748.
Binnie, 834.
Lake (*Curtis & Graham*), 842.
Onions, 859.
Breach, 961.
Newton (*Graham*), 1035.
Mines, 1139.
Henley, 1233.
Turner, 1367.
Granger & Hyan, 1381.
Chadwick, 1479.
Agnellet, 1499.
Lake (*Pullman*), 1524.
Huntly, 1536.
Sinclair, 1930.
Morrison, 1955.
Hancock & Pearse, 2025.
Chaffer, 2038.
Hodges, 2178.
Amos, 2179.
Amos, 2245.
De La Peyrouse, 2260.
Leadbetter, 2290.
Thornton, 2306.
Warry, 2316.
Hughes (*Jessup*), 2547.
Tayler, 2778.
Gent, 3023.
Durham, 3038.
Gent, 3162.
Silber & White, 3254.
Verity & Verity, 3342.

**Cooling and preserving meat:**
Ash, 1223.
Coles, 2324.
Coles, 2573.

**Cooling battery guns:**
Mills (*Taylor*), 1686.

**Cooling boring tools:**
Sumner & Waldenström, 1944.

**Cooling cloth:**
Lake (*Heery*), 2152.

**Cooling grain:**
Chichester & Chichester, 3346.

**Cooling iron in turning:**
Spence (*Fenson*), 3239.

**Cooling liquids, &c.** *See* "Refrigerating."

**Cooling rooms:**
Marchant, 1490.
Coles, 2324.
Clark (*Ménonval-Belcour*), 2679.

**Cooling stand pipes of gas retorts:**
Newton (*Wurtz*), 3508.

**Cooling the human body:**
Robertson, 690.
Huch, 2459.

**Cooling valves:**
Whitwell, 1797.

**Cop tubes.** *See* "Bobbins."

**Copying machines:**
Rebanks, 238.
Ellis & Aubertin, jun., 1213.
Weyl, 2005.
Hesse (*Marx*), 2318.
Tebbitt, 2645.
De Zuccato, 2883.

**Copying sculpture:**
Porter, 802.

**Coral dredging:**
Parlour, 2664.
Taylor, 3258.

**Cordage.** *See* "Ropes."

**Cork; corks; corking:**
Rattray, 348.
Paget (*Lemoine*), 1257.
Podmore & Podmore, 1458.
Campbell, 1534.
Granville (*Granville*), 1970.
Hay, 2855.
Birt, jun., & Birt, 3104.
Pritchard, 3320.

**Cork screws and compressers:**
Gooding, 217.
Lake (*Garrick*), 2699.

**Corn mills.** *See* "Grinding corn."

**Correctors for compasses.** *See* "Compasses."

**Corsets.** *See* "Stays."

**Cotton gins.** *See* "Spinning (opening)."

**Cotton seed (preserving for shipment):**
Newton (*Powers*), 2988.

**Cotton spinning.** *See* "Spinning, twisting."

**Coupling.** *See* "Joining."

**Coverings for ricks or stacks.** *See* "Stacking."

**Coverings for the head.** *See* "Hats."

**Coverlets.** *See* "Upholstery."

**Cowls for chimneys.** *See* "Flues."

**Cranes.** *See* "Hoists."

**Cranks:**
Thomson & Macredie, 886.
Shaw & Boardman, 1283.
Sawdon, 1696.
Quinn, 1703.

**Creels.** *See* "Warping."

**Cricketers' leg and other guards.** *See* "Leggings."

**Crimping.** *See* "Goffering."

**Crinolines.** *See* "Dresses."

**Croquet stands.** *See* "Games."

**Crowbars:**
Wetmore, 100.

**Crucibles:**
Newton (*Spencer*), 907.
Clifford, 1598.
Zenger, 2247.
Lake (*La Bréche-Viger*), 3246.
Payne, 3273.

**Cruets:**
Wright, 1403.

**Cuirasses.** *See* "Breastplates."

**Cultivating land.** *See* "Ploughing."

**Cupboard catches and knobs:**
Gulliver, 1768.
Harrison, 1900.
Pinder, 2519.
Hughes, 2675.

**Cupolas.** *See* "Furnaces."

**Cups, saucers and goblets:**
Rhodes, 106.
Clark (*D'Argy*), 3109.

**Currents of air and gas for motive-power.** *See* "Air-engines."

**Curtains.** *See* "Upholstery."

**Cushions.** *See* "Upholstery."

**Cuspadores** *See* "Spittoons."

**Cutlery (grinding).** *See* "Grinding and surfacing."

**Cutting, sawing and planing wood:**
Blomerley, 40.
Snowdon, 97.
Long, 134.
Clarke, 171.
Mills, 224.
Shute, 331.
Johnson (*Wheeler*), 388.
Smith, 427.
Smith, 506.
Tenwick, 626.
Snowdon, 744.
Riddell, 923.
Greaves & Holroyd, 1154.
Lyle, 1554.
Houbé, Guinet & Lemarchand, 1594.
Fawcett, 1595.
De Bergue & De Bergue, 1914.
Townsend, 1996.
Pollock, 2117.
Burton, 2252.
Haseltine (*Young*), 2288.
Cunningham, 2320.
Pollock & Pollock, 2322.
Pollock & Pollock, 2328.
Clark (*Green*), 2331.
Denempont & Denempont, 2333.
McCarter, 2487.
Gedge (*Quiri*), 2491.
Newton (*Counord*), 2895.
Robinson & Smith, 2953.
Lloyd, 3074.
Martin, 3221.
Mabson, 3495.

**Cutting and arranging cards:**
Goodall (*Mauger*), 1880.

**Cutting and dressing stone and slate:**
Hay, 330.
Thomas, 473.
Stiles & Elsdon, 500.
Smith, 506.
Thompson, 713.
Johnson (*Browne & Hope*), 741.
Porter, 802.
Lake (*Glaister*), 1074.
Bloomfield, 1332.
Newton (*Baxter*), 1462.
Rothery & Rothery, 1471.
Robertson, 1528.
Cowper, 1612.
Holmes, 2000.
Munro & Adamson, 2034.
Sturgeon, 2185.
Lake (*Rider*), 2191.
Cunningham, 2320.
Gowans, 2644.
Darlington, 2657.
Holmes (*Emerson*), 2706.
Thompson, 2802.
Lake (*Young & Young*), 3256.
Johnson (*Browne & Hope*), 3546.

**Cutting and pulping turnips and other roots:**
Corbett, 300.
Perowne, 3255.
Harrison, 3421.

**Cutting bones.** *See* "Bones."

**Cutting clay:**
Gillespie, 2429.

**Cutting cloth, leather and paper:**
Paterson, 42.
Davies, 157.
Lake (*Warth & Jobbins*), 293.
McDonald, 347.
Osbourn, 767.
Broadbent, 799.
Waddington & Turner, 1581.
MacDonald & Calverley, 1644.
Brode & Bash, 1786.
Newton (*Hoe*), 1825.
Munson (*Clark*), 1943.
Marsden, 1981.
Weston, 2069.
Parnacott, 2070.
Nicholls, 2132.
Burton & Mellers, 2264.
Ashcroft, 2291.
Lake (*Woodley*), 2485.
Walker (*Powell*), 2648.
Flack, 2898.
Tullis & Tullis, 2974.
Cooley, 3054.
Gedge (*Dérégnaucourt*), 3122.
Mabson, 3495.
Ashcroft, 3512.

**Cutting coal.** *See* "Mining."

**Cutting edgings or verges:**
McLachlan, 2067.

**Cutting glass:**
Mottram (*Cliee*), 287.
Haseltine (*Spénard & Letourneux*), 476.
Clark (*Morse*), 2934.

**Cutting indigo:**
Olpherts, 1539.

**Cutting metals:**
Norman, 67.
Snowdon, 97.
Shanks, 220.
Sharrocks, 281.
Balme & Crossley, 424.
Smith, 506.
Arnold, 523.
Maxfield & Maxfield, 558.
Clark (*Mussinan*), 747.
Seekings, 1256.
Walkington, 1274.
Whittaker, 1296.
Clark (*Smith, Carver & McCune*), 1441.
Lake (*Dyer*), 1510.
McNabb, 1607.
Harle, 1781.
Smith & Coventry, 1812.
Brown, 1838.
Hyatt, 2116.
Balme & Crossley, 2139.
Cross, 2230.
Cunningham, 2320.
Davies & Leyland, 2622.
Ball, 2646.
Stevenson, 2654.
Robertson, 2682.
Spence (*Fenson*), 3239.
Bentall, 3307.
Kelley, 3498.

**Cutting or chopping sugar;**
Hurd, 1873.
Campion, 2894.
Hurd, 3481.

**Cutting thread, twine, &c.:**
Munson (*Clark*), 1943.
Newton (*Lewis*), 2943.

**Cutting threads of figured fabrics:**
Smith (*Deschamps & Oudit*), 2015.

**Cutting tobacco and cigars:**
Jones, 189.
Henderson (*Courtchoux*), 3530.

**Cylinders, rollers and drums:**
Chapman, 28.
Lismann, 66.
Roeckner, 119.
Knowles & Hetherington, 226.
Green, sen., 270.
Pironet, 369.
Ridsdale, 370.
Hebden, 383.
Henderson, 397.
Hanson, 402.
Brasier, 444.
Haseltine (*Balch & Nelson*), 477.
Aveling, 509.
Lake (*Fitts*), 549.
Payne, 561.
Carr, Butterworth & Hamer, 577.
Kirkham, Ensom & Spence, 645.
Murphy, 646.
Feldtmann (*Gehrckens*), 692.
Seddon, 716.
Bond & Foster, 774.
Collier, 786.
Newton (*Seibert*), 796.
Thornton, 829.
Stocks & Stocks, 830.
Welch, 840.
Towle (*Poole*), 877.
Johnson (*Fish*), 897.
Day (*Masson & Hodgert*), 950.
Clark, 953.
Austin, 999.
Crighton & Crighton, 1045.
Knowles & Hetherington, 1120.
Varley, 1150.
George, 1153.
Morgan-Brown (*Goulding*), 1199.
Naylor, 1245.
Day (*Campbell & Clark*), 1259.
Bourne (*Campell*), 1265.
Donald & Atkey, 1302.
Lake (*Brandt, Lehr, Fisher & Brecht*), 1327.
Wilson, 1335.
Clark (*Havemeyer*), 1352.
McKay & Macgeorge, 1371.
Laycock, 1405.
Curtis (*Palmer*), 1410.
Dickinson & Parkinson, 1414.
Bowden & Shaw, 1427.
Barker, 1434.
Taylor & Cooke, 1513.
Robertson, 1528.
Turner, Messrs., 1556.
Greig & Daniel, 1599.
Ord & Maddison, 1652.
Hunt (*Adams*), 1659.
Rath (*Keenan*), 1688.
Lilley, 1710.
Houghton, 1774.
Hodgart (*Jones*), 1785.
Butterworth, 1793.
Kaeuffer, 1794.
Ellis, 1799.
Rowan, 1806.
Newton (*Hoe*), 1825.
Edmondson, Bros., 1828.
Joannides, 1832.
Vaughan, 1876.
Jones, 1961.
Weyl, 2005.
Parnacott, 2057.
Widmark, 2093.
Guinotte, 2094.
Knowles, jun., 2106.
Pearson, 2115.
Lake (*Heery*), 2152.
Westlake & Thompson, 2187.
Borland, 2221.
Abel (*Messrs. Rousseau*), 2229.
Brown, 2253.
Johnson (*Dunk*), 2260.
Gardner (*Mauger*), 2350.
Gardner (*Mauger*), 2358.
Abel (*Grison*), 2362.
Brasier, 2388.

**Cylinders, &c.—*cont.***
Stead, 2392.
Pearson & Rumney, 2400.
Barlow, 2401.
Bresson, 2407.
Furness, 2437.
Dronsfield, 2474.
Banks & Walker, 2495.
Gibbs, 2539.
Newton (*Grimaldi*), 2579.
Davies & Leyland, 2622.
Ellis, 2626.
Pittman, 2634.
Bowker, 2692.
Wise (*Bede & Co.*), 2702.
Heywood, 2720.
Cowan & Cowan, 2723.
Fairlie, 2725.
Crosland, 2749.
Moy & Shill, 2762.
Edwards, 2799.
Rydill, 2807.
Perkins, 2819.
Clark (*Herrmann*), 2852.
Garnier, 2864.
Chase, 2877.
Clark (*Lavater & Michel*), 2910.
Langshaw, 2919.
Moseley, 2927.
Cameron, 2930.
Pollock, 2940.
Rocliffe & Radcliffe, 2973.
Edwards, 2982.
Farmer, 3013.
Latour, 3063.
Ryder, 3079.
Lake (*Pease*), 3102.
Nussey & Leachman, 3230.
Gilbertson, 3287.
Greig & Greig, 3290.
Turney, 3310.
Unsworth, 3316.
Hughes (*Kellogg*), 3473.
Tatham, 3481.
Brandon (*Fogerty*), 3483.
Wightman, 3487.
Kelley, 3496.
Childs, 3511.

**Cyphers; writing in cypher:**
Silas, 504.
Johnson (*Caleagno*), 1023.

## D.

**Daggers and stilettoes:**
Bertram (*Bertram*), 1303.

**Damping lithographic stones:**
Walker, 2674.
Goubet & Monrocq, 3506.

**Damping or moistening warp threads, cops, &c.:**
Cocker, 977.
Shackleton, 1334.
Gratrix & Gratrix, 2929.

**Damping paper:**
Rebanks, 233.
Cocker, 977.
Newton (*Hoe*), 1825.
Weyl, 2005.
Hesse (*Marx*), 2318.
Tebbitt, 2645.

**Darning or mending socks, stockings and other articles:**
Sparrow, 1819.

**Dating and marking tickets, cards, invoices, bills of lading, &c.:**
Lewthwaite, 39.
Millar, 371.
Barrett & Wright, 1562.
Hammond (*Jullien*), 3392.

**Decanters.** *See* "Bottles."

**Decarbonizing smoke, &c. from furnaces.** *See* "Smoke."

**Decoctions.** *See* "Infusions."

**Decolourizing sugar, &c.:**
Newton (*Gloag*), 856.
Dawlings (*Brough & Gilson*), 1406.

**Decorating walls and ceilings:**
Lake (*Kemmer*), 234.
Tyzall, 308.
Brannon, 2703.

**Decorticating grain or seeds.** *See* "Thrashing."

**Dentistry; artificial teeth:**
Bing, 167.
Haseltine (*Morrison*), 578.
Lake (*Hyatt, Hyatt, jun. & Perkins*), 1025.
Symons (*Dotch*), 2923.
Johnson (*Forster*), 3178.

**Deodorizing:**
Baly (*Parish*), 351.
Dover, 804.
Pollock & Pollock, 1417.
Baker, 1754.
Target, 1847.
Brown, 1859.
Norton, 1938.
Beckett & Cam, 2109.
Lupton, 2140.
Parry, 2233.
Williamson & Glazier, 2497.
Burrow, 2659.
Crookes, 2763.
Wilks, 2841.
Clark (*Plasse*), 2879.
Roberts, 2907.
Symons (*Dotch*), 2923.
Garden & Abbott, 2975.
Smith, 2997.
Miccio, 3042.
Hughan, 3060.
Tilden, 3085.
Chichester & Chichester, 3346.
Scott, 3515.

**Depositing nickel on metals.** *See* "Coating metals."

**Derrick cranes.** *See* "Hoists."

**Destroying insects.** *See* "Insects."

**Detecting negligence of workmen.** *See* "Tell-tales."

**Dextrine.** *See* "Starch."

**Diapers or dress protectors:**
Lake (*Wittram*), 2138.

**Dies and swages:**
Edmondson, Bros., 1828.
Mills (*Lewis*), 1877.
Davies & Leyland, 2622.
Lake (*Champney & Hayward*), 2687.
Rocliffe & Radcliffe, 2973.
Gordon, 3070.
Haseltine (*Gladwin & Hotchkiss*), 3176.
Whitehead, 3362.

**Digging, drying and separating potatoes and other like roots:**
Haseltine (*Ross*), 86.
Hull (*Johnson*), 1313.
Dewar, 1758.
Stodart, 1913.
Norton, 2571.

**Dips for sheep and other animals;**
Reid, 138.

**Discharging cargo.** *See* "Ships' cargoes."

**Dishes; dish covers:**
West, 448.
Macdonell, 1228.
Wall, 1824.
Bousfield (*Goddard & Adams*), 2064.

**Disinfecting:**
Baly (*Parish*), 351.
Westerton, 861.
Bateson, 1137.
Fahlmann, 1269.
Southwood, 1316.
Granger & Hyan, 1445.
Stephens, 1493.
Baker, 1754.
Target, 1847.
Brown, 1859.
Scott, 2243.
Clark (*Ménonval-Belcour*), 2679.
Crookes, 2763.
Clark (*Plasse*), 2879.
Danchell, 2903.
Roberts, 2907.
Symons (*Dotch*), 2923.
Miccio, 3042.
Hughan, 3060.
Tilden, 3085.
Fahlmann, 3233.
Leetch, 3244.
Ebdy, 3297.
Minton, 3391.

**Disintegrators:**
Lake (*Simpson*), 1388.
Greenhill, 2789.
Johnson (*Messrs. Pilon*), 2803.
Lake (*Webster & Hall*), 3349.

**Distance indicators.** *See* "Indicating distance."

**Distilling alcohol and spirituous liquors:**
Campbell & Appleby (*Leplay*), 2.
Lake (*Gilman*), 141.
Steel & Wilson, 975.
Harris (*Oliver & Harris*), 1048.
Granger & Hyan, 1381.
Smith, 1390.
Dawlings (*Brough & Gilson*), 1406.
Moubray, 1651.
Sinclair, 1930.
Gedge (*Quilaverth*), 2698.
Willison, 3026.

**Distilling beet and other roots.** *See* "Sugar."

**Distilling fuel in gas making.** *See* "Gas."

**Distilling oils:**
Dahne & Hughes, 81.
Church, 305.
Eveleigh, 443.
Granger & Hyan, 1381.
Heyl, 2786.
Clark (*Pratt*), 2960.
Crane & Moir, 3055.
Emmens, 3130.
Hodges, 3241.
Fenner & Versmann, 3486.

**Distilling paper makers' spent ley:**
Sinclair, 1666.

**Distilling soap-suds, scak, &c.:**
Mirfield & Scott, 2394.

**Distilling water.** *See* "Filtering."

**Distilling wood:**
Schwartz, 1179.

**Distributing manure.** *See* "Sowing seed."

**Ditches.** *See* "Drains."

**Diving; diving bells:**
Boyd (*Moulon*), 263.
Truscott, 1172.
Wright, 2273.

**Docks; floating docks; cleansing docks:**
Turnbull, 155.
Lungley, 210.
Phalp, 301.
Ball, 445.
Cochrane, 520.
Janicki, 788.
Descamps & Breh, 941.
Janicki, 1550.
Turnbull, 1878.
Scott, 2736.
D'Humy, 3041.
Leigh, 3411.

**Dog and other quadruped power for driving sewing and other machines:**
Mabson, 3495.

**Dolls.** *See* "Toys."

**Door steps:**
Galloway, 1628.

**Doors and gates; door furniture:**
Pocock, 87.
Archer, 107.
Wilkes, 202.
Buller, 211.
Burr, 258.
Tysall, 308.
Tate, 316.
Shute, 331.
Jobson, 453.
Slater, 461.
Munro, 822.
Brook, 965.
Collins, 1187.
Bayliss, 1289.
Leloup (*Libotte*), 1307.
Baker, 1317.
Broomhall, 1328.
Pugin & Ayres, 1408.
Whitworth, 1438.
Lee & Rogers, 1597.
Moffatt, 1611.
Long, 1709.
Farrel, 1761.
Gulliver, 1768.
Walker, 1823.
Bayliss, 1836.
Harrison, 1900.
King, 1925.
Davidson, 1962.
Neale, 2058.
Bousfield (*Goddard & Adams*), 2064.
Turner, 2085.
Dutton, 2098.
Chatfield, 2142.
O'Connor, 2241.
Clark (*Robinson*), 2280.
Verity & Verity, 2339.
Long, 2398.
Neilson, 2483.
Defflis (*Mauger*), 2498.
Pinder, 2519.
MacCarthy, 2550.
Neale, 2618.
Hughes, 2675.
Brannon, 2703.
Slater, 2710.
Lecloux, 2842.
Wright, 2860.
Neale, 2950.
Samels, 2955.
Heald, jun., 3072.
Haseltine (*Rowell & Duncan*), 3108.
Corliss, 3128.
Touaillon (*André & Fleury*), 3199.
Mabson, 3495.

**Dosimeters:**
Hunt (*Féron-Flament*), 584.

**Doubling and throwing fibrous materials.** *See* "Spinning, twisting."

**Drains and sewers; draining:**
Jennings 229.
Jackson, 489.
Penn-Gaskell, 565.
Dunkley, 576.
Bothams, 637.
Dover, 804.
Newton (*Graham*), 925.
Newton (*Graham*), 1035.
Jennings, 1341.
Hunt (*Gordon*), 1348.
Granger & Hyan, 1445.
Chadwick, 1479.
Hildred, 1745.
Wilson, 1749.
Skinner, 1795.
Croskey (*McKinley*), 1842.
Sutcliffe & Sutcliffe, 1844.
Brown, 1859.
Johnson, 2391.
Lees, 2565.
Wilson, 2578.
Burge, 2722.
Okes, 2980.
Barnsley & Barnsley, 3003.
Wells, 3008.
Bridson, 3190.
Norton, 3198.
Jupp, 3338.
Tylor, 3339.
Cunnington, 3380.
Tayler, 3388.
Hurd, 3433.
Temple, 3496.
Childs & Childs (*Sweet*), 3510.

**Draught, dust and rain excluders for doors:**
Slater, 2710.

**Draw plates or blowers.** *See* "Air supplying to furnaces."

**Drawers or pants:**
Pulvermacher, 1460.
Onion, 2839.
Lamb & Lowe, 3068.

**Drawing fibres.** *See* "Spinning, twisting."

**Drawing wire.** *See* "Wire-working."

**Drawing and sketching:**
Russell, 1553.
De Zuccato, 2883.

**Dredging:**
Lungley, 210.
Taylor, 3258.

**Dress improvers.** *See* "Dresses."

**Dresses and other garments; ladies' underclothing:**
Minns, 438.
Hodgson & Broadley, 751.
Peacock, 1661.
Robertson, 1746.
Brewer (*Edard & Bazault*), 1947.
Lake (*Wittram*), 2138.
Kent (*King*), 2505.
McCalla, 2769.
Lockyer, 2889.
Gibson, 2961.
Macintosh & Boggett, 3140.
Cocking, 3283.
Schuurman, 3306.
Hall, 3314.

**Dressing cases.** *See* "Toilet cases."

**Dressing flour.** *See* "Grinding corn."

**Drilling or making holes.** *See* "Boring."

**Drills, seed-drills.** *See* "Sowing."

**Driving bands.** *See* "Bands."

**Drop drills.** *See* "Sowing."

**Drowning (saving from).** *See* "Life preservers."

**Drugs (reducing to small particles).** *See* "Grinding chemicals."

**Dry closets or privies.** *See* "Water-closets."

**Drying; expressing moisture:**
Payne, 19.
Hays, 111.
Young, 248.
Brasier, 444.
Haseltine (*Perkins, Moulton & Sawyer*), 528.
Truswell & Truswell, 535.
McNaught & McNaught, jun., 542.
Lake (*Fitts*), 549.
Lodge, 632.
Bramwell, 657.
Deacon, 691.
Collier, 786.
Gedge (*Parts*), 849.
Rock, 876.
Kempe & Kempe, 883.
Winn, 966.
McNicol, 1012.
Lake (*Hyatt, Hyatt, jun. & Perkins*), 1025.
Eyton, 1028.
Norfolk, 1046.
Rowan, 1067.
Wrigley, 1069.
Irvine & Johnson, 1084.
Whitehead, 1113.
Hughes (*Weinrich & Schroder*), 1185.
Henley, 1233.
Andrew, 1306.
Jackson, 1308.
Olpherts, 1369.
Granger & Hyan, 1381.
Clark (*Dervieux*), 1396.
Agnellet, 1499.
Russell, 1587.
Parrish (*Parrish*), 1610.
Payne & Newton, 1656.
Perry (*Verster*), 1685.
Jensen (*Erichsen*), 1690.
Torrance & Torrance, 1833.
Tessier, 1834.
Wérotte, 1902.
Hargreaves & Robinson, 1920.
Taylor, 1969.
Paul, 1985.
Whieldon, Hays & Hays, 2100.
Beckett & Cam, 2109.
Hodges, 2178.
Parry, 2233.
Scott, 2243.
Amos, 2245.
Bright, 2274.
Abel (*Grison*), 2362.
Brookes (*Du Rieux & Roettger*), 2378.
Parry, 2481.
Gibbs, 2539.
Norton, 2571.
Goreham, 2588.
Jackson, 2603.
Pocock, jun., 2628.
Milburn & Browning, 2696.
Lodge, 2717.
Pow, 2760.
Rydill, 2807.
Gratrix & Gratrix, 2929.
Garden & Abbott, 2975.
Newton (*Powers*), 2988.
Hyatt, 3022.
Johnson, 3032.
Wylam, 3093.
Lake (*Pease*), 3102.
Lafferty & Lafferty, 3322.
Chichester & Chichester, 3346.
Goubet & Monrocq, 3506.
Millbourn, 3524.

**Drying chlorine gas.** "*See* Chlorine."

**Drying-oils:**
Eveleigh, 443.
Marchisio & Stevens, 775.
Ford, 2311.

**Dusters.** *See* "Brushes."

**Dyeing fabrics, yarns, &c.:**
Barker & Bean, 114.
White, 284.
Oldroyd, Oldroyd, jun., & Woodcock, 299.
Holland, 334.
Cochrane, Messrs., 389.
Macleod, 392.
Macleod, 494.
Kirkham, Ensom & Spence, 645.
Knowles, Ashworth & Ashworth, 927.
Oldroyd, Oldroyd, jun., & Woodcock, 1229.
Granger & Hyan, 1381.
Pollock & Pollock, 1517.
Pearson, 1583.
Pearson, 1590.
Casthelas & Depoully, 1879.
Lake (*Henry*), 2152.
Abel (*Grison*), 2259.
Abel (*Allart*), 2292.
Ray (*Corron*), 2347.
Abel (*Grison*), 2362.
Sampson, 2434.
Smith (*Muller*), 2676.
Heywood, 2720.
Duncan & Duncan, 2735.
Pinkney, 2745.
Abel (*Allart*), 2746.
Rydill, 2752.
Rydill, 2753.
Chaudet, 2871.
Ferrie & Murray, 2893.
Tongue (*Meynier*), 3126.
Schützenberger & De Lalande, 3377.

**Dyes and printing colours:**
Holland, 334.
Hiley, 757.
Olpherts, 1369.
Clark (*Grawitz*), 1374.
Olpherts, 1539.
Fenton, 1897.
Curtis, 2040.
Jackson, 2603.
Milburn & Browning, 2696.
Pinkney, 2745.
Sawyer, 2nd, 3073.
Schützenberger & De Lalande, 3377.
Binks, 3500.

**Dyewoods (treating refuse from):**
Chaudet, 2871.

**Dynamotors:**
Guzman, 2866.

## E.

**Earrings:**
Downes, 208.
Jacob, 3111.

**Earthenware and porcelain; ceramic wares, &c.:**
Blackmore, 188.
Hollins, 682.
Newton (*Spencer*), 907.
Von Levetzow, 931.
Wrigley, 1069.
Stocker, 1149.
Bowden & Shaw, 1427.
Chadwick, 1479.
Moffatt & Henley, 1827.
Murray, 2177.
Gillespie, 2429.
Chapman, 2440.
Goreham, 2588.
Varley & Varley, 2596.
Hughes (*Hoggson*), 3146.
Johnson (*Muller*), 3289.

**Earthy salts:**
Irvine, 22.
Kenyon & Swindells, 79.
Lorberg, 244.
Morfit, 987.
Townsend, 995.
Morfit, 997.
Irvine & Johnson, 1084.
Tanner, 1147.
Prentice, 1215.
Menzies (*Lewis*), 1311.
Morfit, 1420.
Tanner, 1776.
Way, 1851.
Parnell, 2874.
Vassard, 2926.
Hughan 3060.

**Economising fuel.** *See* "Fuel."

**Edge tools:**
Edwards, 1196.

**Effervescing draughts.** *See* "Aërated liquids."

**Egg beaters and whisks:**
Schlesinger (*Dixon*), 1728.
Hunt (*Goodenough, jun.*), 1935.

**Elastic compounds.** *See* "India-rubber."

**Elastic stockings.** "*See* Stockings."

**Electric telegraphs.** "*See* "Telegraphs (electric)."

**Electricity, galvanism and magnetism:**
Welch, 3.
McEvoy, 10.
Stanford & Price, 61.
Varley, 131.
Wilson, 192.
Tongue (*Thompson*), 209.
Boyd (*Moulen*), 263.
Lake (*Jones, Smith & Weaver*), 294.
Haseltine (*Balch & Nelson*), 477.
Welch, 776.
Price, 843.
Johnson (*Nes*), 866.
Field, 870.
Gooding, 978.
Hamilton & Sax, 1027.
Varley, 1150.
Clark (*Arden*), 1165.
Wright (*Minor & Britton*), 1208.
Bartholomew, 1238.
Newton (*Paine & Frost*), 1361.
Pulvermacher, 1460.
Lake (*Foote & Randall*), 1474.
Wilde, 1511.
Lyttle, 1536.
Unwin, 1626.
Harrison, 1635.
Highton, 1643.
Napier, 1705.
Sanderson, 1899.
Galloway, 1958.
Whitehouse, 1998.
Highton, 2084.
Smith (*Bean*), 2157.
Wheatstone & Stroh, 2172.
Lake (*Prevost & Barjon*), 2219.
Lake (*Utley & Ross*), 2238.
Fearn, 2266.
Clark (*Robinson*), 2280.
Little, 2286.
Lake (*Jones & Lawrence*), 2426.
Hunt (*Anders & Welch*), 2435.
Lake (*Gassett*), 2439.
Viellet & Verny, 2441.
Miles, 2472.
Gardner (*Hauger*), 2488.
Varley & Varley, 2596.
De Lobstein, 2623.
Zanni, 2721.
Leatham, 2726.
Henry & Henry, 2751.
Newton (*Bastet & Seligman*), 2759.

**Electricity, &c.—*cont.***
Williams, 2787.
Henley & Horstman, 2800.
Clark (*Plasse*), 2879.
De Zuccato, 2883.
Haseltine (*Rowell & Duncan*), 3108.
Garrett, 3235.
Fortoul, 3249.
Lake (*Smith*), 3366.
Kilpatrick & Cooke, 3394.
Harrison, 3396.
Newton (*Otis & Otis*), 3430.
Unwin, 3459.
Davies, 3469.
Leclanché, 3521.

**Electro-plating.** *See* "Coating metals."

**Embankments:**
Mallet, 327.
Cochrane, 520.
Brodie, 1957.
Cochrane, 2120.
Brannon, 2703.

**Embossing; producing raised patterns:**
Harrington, 109.
Haley, Messrs., & Paul, 1217.
White (*Baudelot*), 1648.
Edmondson, Bros., 1828.
Casthelas & Depoully, 1879.
Harrington, 2423.
Harrington & Richards, 2538.

**Embroidering.** *See* "Sewing."

**Emery (crushing):**
Goodman, 2114.

**Emery, sand and glass papers, ropes and cords: emery cloth:**
Johnson (*Taft & Armbruster*), 533.
Dejey, 2073.
Lake (*Barker*), 2092.
Briggs, 2971.
Edwards, 2982.

**Enamelling and enamels:**
Brock, 59.
Rhodes, 106.
Harris, 123.
Busch, 746.
Newton (*Graham*), 1035.
Griffiths, 1522.
Neilson, 2483.
Hughes (*Hoggson*), 3146.
Johnson (*Forster*), 3178.
Allen, 3202.
Lake (*Bartlett*), 3217.
Johnson (*Muller*), 3289.

**Engraving; engraving machines:**
Towle (*Babcock*), 1418.
White (*Baudelot*), 1648.
Peacock, 1661.
Edmondson, Bros., 1828.
Abel (*Grison*), 2362.
Rocliffe & Radcliffe, 2973.
Mc Elcheran, 3446.

**Entrenching.** *See* "Trenches."

**Envelopes:**
Menzies (*Morris*), 103.
Adams, 267.
Akin, 515.
Dickes, 649.
Lister, 1532.
Chipman (*Smith*), 1714.
Parkins, 1888.
Munson (*Clark*), 1943.

**Envelopes for oil presses.** *See* "Strainers or envelopes."

**Equatorials:**
Thomson, 810.

**Erasers (rubber):**
Johnson (*Reckendorfer*), 2830.

Escutcheons for doors. *See* "Doors."

Espagnolettes. *See* "Windows."

Etching:
Edmondson, Bros., 1828.

Evaporating. *See* "Heating."

Excavating:
Trevithick, 1575.
Webb, 2420.
Smith (*Folacot*), 2493.
Gowans, 2644.
Watteau (*François & Dubois*), 3004.
Taylor, 3258.
Haseltine (*Shelley & Bullock*), 3270.
Childs & Childs (*Sweet*), 3510.

Excreta (treating). *See* "Manure."

Exercises. *See* "Games."

Exhausting air. *See* "Air pumps."

Exhibiting photographic cards and pictures:
Norris (*Barnaby*), 1526.
Ross, jun., 2685.
Nunes (*Nunes*), 2931.

Explosive substances. *See* "Gunpowder."

Expressing moisture. *See* "Drying."

Extinguishing fire. *See* "Fire-engines."

Extinguishing gas. *See* "Gas extinguishers."

Extract of meat. *See* "Preserving food."

Extracting stumps and clearing land. *See* "Ploughing."

Eye-glasses. *See* "Spectacles."

Eyelets:
Freeman, 882.
Clark (*Smith, Carver & McCune*), 1441.
Lake (*Dyer*), 1510.

## F.

Fabrics:
Botterill, jun., & Morrell, 4.
Walker, 170.
Hodge, 398.
Tongue (*Merrill*), 740.
Wood, 911.
Holdsworth, Messrs., 1068.
Walker, 1151.
Leonard, 1164.
Lake (*Comstock*), 1216.
Walker, 1413.
Rath (*Keenan*), 1683.
Slater & Schollar, 2272.
Martin, 2479.
Kent (*King*), 2505.
Gedge (*Gaudefroy*), 2545.
Walker, 2621.
Lockyer, 2889.
Gibson, 2961.
Briggs, 2971.
Gedge (*Petit*), 3173.
Schuurman, 3306.

Fabrics (making transparent):
Townsend & Rollason, 2972.

Fabrics from paper and cloth combined:
Briggs, 2971.

Fans (hand):
Clark (*Ménoweal-Belcour*), 2679.

Fastenings or seals for papers, &c.
Mills (*Brooks*), 1440.

Fat. *See* "Oils (animal)."

Faucets:
Lake (*Ireland*), 789.

Feathers:
Gedge (*Von Conring & Voigt*), 566.

Feed mechanism for machines. *See* "Propelling."

Feeding bottles:
Stocker, 1149.
Street, 2376.
Brooks, 3262.

Feeding cattle and other animals:
Lambert, 1239.
Wilson, 1950.
Welch, 2303.

Feeding steam-boilers with water. *See* "Steam-boilers (water-feeding)."

Felted fabrics. *See* "Fulling."

Fences:
Mortlock & Newton, 687.
Kennan & Kennan, 1285.
Bayliss, 1289.
Hugon (*Jubelin*), 1344.
Franks, 1577.
Lee & Rogers, 1597.
Fowke, 1621.
Bayliss, 1836.
Murray, 2177.
Stevenson, 2914.
Touaillon (*André & Fleury*), 3199.
Simpson, 3390.

Ferneries:
Walkland & Unwin, 241.

Ferrules for tools:
Lake (*Alexander, Clarke & Clarke*), 2936.

Fettling or lining furnaces. *See* "Furnaces."

Fibres:
Whitehead, 196.
Broad, 225.
Gibbs, 256.
Stewart & Wallace, 271.
Annandale, jun., 279.
Pironet, 369.
Smith & Granville, 372.
Cochrane, Messrs., 389.
Macarthur (*Jones*), 415.
Gordon (*Forbes*), 431.
Barraclough, 495.
Duff, 519.
Patterson, 527.
McNaught & McNaught, jun., 542.
Burman, 545.
Hunt (*Féron-Flament*), 584.
Bousfield (*Whipple*), 587.
Annandale, jun., 605.
Kirkham, Ensom & Spence, 645.
Annandale, jun., 664.
Dickson, 710.
Seddon, 716.
Newton (*Draper*), 794.
Riddell, 923.
McNicol, 1012.
Lake (*McConnell*), 1015.
Brookes (*Leroy*), 1031.

Fibres—*cont.*
Bousfield (*Brown*), 1041.
Crighton & Crighton, 1045.
Toepler, 1052.
Weldon, 1184.
Lake (*Comstock*), 1216.
Muschamp, 1326.
Abel (*Henderson*), 1331.
Curtis (*Palmer*), 1410.
Newton (*Keegan*), 1422.
Barker, 1434.
Fleming, Turnbull, Salvesen, Irvine & Maclagan, 1451.
Olpherts, 1586.
Wilson, 1625.
Colls, Atkinson, Michael & Knight, 1650.
Hodgart (*Jones*), 1785.
Shaw & Shaw, 1826.
Torrance & Torrance, 1833.
Riddell, 1839.
Johnson (*Adamson*), 1853.
Demailly, 1863.
Wilkinson, 1874.
Love (*Lahousse*), 1963.
Broad, 1994.
Petrie, jun., 2027.
Johnson (*Adamson*), 2168.
Jones, 2181.
Westlake & Thompson, 2187.
Monteiro, 2195.
Fleming, Maclagan & Irvine, 2196.
Davis & Struthers, 2256.
Newton (*Hayem*), 2271.
Stauf, 2294.
Hoyle & Bailey, 2309.
Helliwell, 2330.
Goulding, 2381.
Varley & Varley, 2386.
Brasier, 2388.
Lake (*Baldwin*), 2406.
Brown, 2466.
Andrews & Gibbs, 2525.
Simpson, 2536.
Gibbs, 2539.
Norton, 2571.
Granville, 2617.
Demailly, 2635.
Jackson, 2656.
Lake (*Lang*), 2719.
Rydill, 2752.
Rydill, 2753.
Rydill, 2754.
Smith, 2784.
Rydill, 2807.
Chaudet, 2871.
Monteiro, 2887.
Brown, 2888.
Moseley, 2927.
Wilkinson, 3000.
Webb, 3212.
Martin, 3221.
Riddell, 3303.
Newton (*Cornut*), 3321.
Vickers, 3371.
Cleghorn & Reid, 3440.
Greaves (*Cotton*), 3526.

Files and clips for papers:
Rowe, 653.
Lake (*Dyer*), 1520.
Schlesinger (*Schlesinger*), 1729.

Filing and rasping:
Durant (*Tucker & Snell*), 262.
Smith, 506.

Filtering:
Llewellin, jun., 903.
Stapfer & Dean, 942.
Dawlings (*Brough & Gilson*), 1406.
Gwynne, 1675.
Starnes, 1697.
Morrison, 1955.
Curtis, 2040.
Pearson, 2112.
Roberts, 2135.
Lupton, 2140.
Moore, 2189.
Johnson (*Berryman*), 2218.
Bazin, 2289.
Brookes (*Du Rieux & Roettger*), 2378.
Owen, 2470.

**Filtering**—*cont.*
Banks & Walker, 2495.
De Chastelain, 2567.
Stapfer, 2591.
Slagg, 2697.
Pow, 2760.
Selden, 2967.
Johnson (*Denans*), 3153.

**Fining and preserving beer, ale, wine, &c.:**
Gillman & Spencer, 607.
Matthews, 2101.
Gregory, 3200.

**Finishing, dressing, singeing, shearing, folding and pressing woven fabrics, yarns, &c.:**
Botterill, jun., & Morrell, 4.
Payne, 19.
Roeckner, 119.
Bell, Urquhart & Lindsay, 306.
Smith, 345.
Barran & Barran, jun., 377.
Cochrane, Messrs., 389.
Macleod, 494.
Barraclough, 495.
Patterson, 527.
Mather, 702.
Broadbent, 799.
Smith & Donald, 805.
Riley, 895.
Cocker, 977.
Tysoe, 1039.
Ingham & Butterfield, 1100.
Clayton, 1129.
Leonard, 1164.
Wilson, 1335.
Granger & Hyan, 1381.
Waddington & Turner, 1581.
Pearson, 1583.
Pearson, 1590.
Ermen, 1593.
Payne & Newton, 1656.
Deblon, 1702.
Robertson, 1746.
Casthelaz & Depoully, 1879.
Sanson, 2036.
Sibert, 2136.
Dann (*Ahrens*), 2237.
Abel (*Grison*), 2362.
Moseley, 2927.
Wilkinson, 3000.
Schofield & Mellor, 3031.
Nussey & Leachman, 3230.
Wood, 3234.
Dawson, 3468.

**Finishing leather:**
Haley, Messrs., & Paul, 1217.
Casthelaz & Depoully, 1879.
Tullis & Tullis, 2974.

**Fire alarms:**
Haseltine (*Watkins*), 373.
Wilson, 420.
Zanni, 2721.

**Fire-arm practice registers:**
Innes, 817.

**Fire-arms, guns and ordnance; gun carriages:**
Hughes (*Winchester*), 32.
Green & Green, 49.
Nodder, 65.
Lismann, 66.
Snowdon, 97.
Wetmore, 100.
Mann (*Stempf*), 187.
Merckelbagh, 204.
Nicholas, 233.
Smith (*Broadwell*), 250.
Hodges, 251.
Hughes (*Whitney*), 350.
Smith (*Broadwell*), 380.
Van Choate, 394.
FitzMaurice, 409.
Wyley, 425.
Lees, 455.
Wise (*Wacha*), 483.

**Fire-arms, &c.**—*cont.*
Restell, 639.
Samain, 661.
Nillus, 666.
Britten, 715.
Lake (*Dodge & Dodge*), 755.
Russ, Morris, Hammond & Hammond, 766.
Gordon, 777.
Ansell, 825.
Green (*Abbey & Foster*), 929.
Murcott, 1003.
Hunt (*Bohman*), 1081.
Rigby, 1098.
Newton (*Marshall*), 1114.
Von Martini, 1144.
Graham, 1159.
Ansell, 1174.
Paget (*Lemoine*), 1257.
George, Marquis of Tweeddale, 1340.
Manton (*Manton*), 1389.
Wilson (*Berdan*), 1425.
Clark (*Townsend*), 1428.
Bessemer, 1466.
Heath, 1512.
Crichton, 1533.
Richards, 1572.
Galloway, 1628.
Lake (*Kerr & Brydges*), 1647.
Mills (*Taylor*), 1686.
Scott, 1691.
Hinchliff & Chapman (*De Broca*), 1755.
Newton (*Cody*), 1770.
Bailey, 1789.
Ermen, 1790.
Aston, 1866.
Johnson (*Jarre, jun.*), 2002.
Johnson, 2004.
Gordon, 2039.
Zeller, 2110.
Harston, 2124.
Whitworth, 2149.
Wilson (*Berdan*), 2244.
Milbank, 2283.
Denempont & Denempont, 2333.
Walker, 2344.
Johnson (*Société Industrielle Suisse*), 2349.
Bayliss, 2387.
Hall, 2396.
Tranter, 2509.
Muratori, 2521.
Green (*Abbey & Foster*), 2522.
Tongue (*Merrill*), 2568.
Johnson (*Larue*), 2615.
Garnier, 2864.
Newton (*Thompson*), 2880.
Gedge (*Turon*), 2891.
Prioleau (*Von Martini*), 2925.
Purdey, 2952.
Clark (*Gatling*), 2954.
Tooth, 2965.
Penton, 3058.
Thomas, 3091.
Smith (*Le Mat*), 3218.
Smith (*Le Mat*), 3224.
Wallis, 3318.

**Fire-arms, guns and ordnance (working, discharging and teaching):**
Bessemer, 223.
Husband, 280.
Wyley, 425.
Gordon, 777.
Tottenham, 946.
MacDowall, 955.
Shakespear, 986.
Harris, 1056.
Hunt (*Bohman*), 1081.
Clark (*Arden*), 1165.
Anderson, 1393.
Clark (*Townsend*), 1428.
Bessemer, 1466.
Mills (*Taylor*), 1686.
Hinchliff & Chapman (*De Broca*), 1755.
Duley & Marriott, 1979.
Clark (*Arden*), 2380.
Kilner, 2543.
Wier, 2585.
Liardet, 2611.
Vernon, 2653.

**Fire-arms, &c.**—*cont.*
Lake (*Trawniczek*), 2865.
Smith (*Broadwell*), 3274.
Mure, 3408.

**Fire-clay (preparing).** *See* "Casting plastic."

**Fire-engines; extinguishing fire:**
Mills, 88.
Carteron & Rimmel, 118.
Jackson, 489.
Budenberg (*Ehrhard*), 595.
Finley, 1173.
Sanderson, 1899.
Tongue (*De Laharpe & Fouché*, 2006.
Hyatt, 3124.
Johnson (*Bañolas et Cie*), 3259.

**Fire-escapes:**
Clarke, 479.
Hayman, 1329.
Shand, 2902.
Fennell, 3110.
Clark (*McCullen*), 3295.

**Fire-lighters.** *See* "Fuel."

**Fire-places; stoves:**
Hogg, 156.
Ritchie, 185.
Haywood & Parker, 216.
Mines & Evans, 387.
Crichley, 478.
Millward (*Hoeller*), 699.
Lake (*Curtis & Graham*), 842.
Clarke, 848.
Newton (*Spencer*), 907.
Norfolk, 1046.
Mines, 1139.
Mines, 1140.
Turner, 1367.
Blunn & Wild, 1504.
Huntley, 1536.
Douglas, jun., 1892.
Wérotte, 1902.
Hancock & Pearse, 2025.
Chaffer, 2038.
Roberts, 2066.
Hodges, 2178.
Amos, 2179.
Breach, 2194.
Amos, 2245.
Abel (*De Usera & Goujet*), 2258.
Thornton, 2306.
Newton (*Martin*), 2425.
Smith, jun., 2455.
Gedge (*Bontems*), 2510.
Brannon, 2703.
Tayler, 2778.
Evans, 2886.
Holmes, 2966.
Barnes, 3019.
Johnson, 3032.
Roberts, 3148.
Taylor, 3260.
Ebdy, 3297.
Atkinson, 3331.
Lake (*Danks*), 3465.
Wilde, 3509.

**Fireproofing and rendering uninflammable:**
Carteron & Rimmel, 118.
Chadwick, 1479.
Hyatt, 1482.
Farrel, 1761.
Tibbitts & Fullwood, 1783.
Stott, 1881.
Hyatt, 2119.
Brannon, 2703.
Hornblower, 2848.
Bates, 2912.
Dunn, 3005.
Hyatt, 3124.

**Fish (preserving and carrying):**
Durand, 460.
Ash, 1223.
Henley, 1233.
Baggs, 1806.

Fish, preserving, &c.—*cont.*
Bernard, 2637.
Gedge (*Quilaverth*), 2698.
Vasquez & Rosenberg, 3387.

Fishing lines, nets and traps:
Unsworth, 1068.
Chase, 2377.
Jones, 3165.

Flagging. *See* "Road making."

Flagon cases. *See* "Bottle cases."

Flannel (medicated). *See* "Medical bands."

Flasks. *See* "Bottles."

Flax spinning. *See* "Spinning, twisting."

Flies, mosquitoes, &c. *See* "Insects."

Floating baths. *See* "Baths."

Floating docks. *See* "Docks."

Floating mattresses. *See* "Upholstery."

Floor and stair cloths:
Walton, 199.
Zimmer & McEvoy, 764.
Wood, 911.
Walker, 1151.
Walker, 1413.
Charles & Taylor, 1738.
Parnacott, 2057.
Briggs, 2971.
Gale & Boyden, 3376.

Floor scrapers:
Lake (*Garrick*), 2699.

Floors:
Tysall, 308.
Cochrane, 520.
Rock, 876.
Descamps & Breh, 941.
Newton (*Graham*), 1035.
Bird, 1193.
Macomber, 1315.
Chadwick, 1479.
Hyatt, 1482.
Galloway, 1628.
Bessemer, 1737.
Newton (*Brennan*), 1743.
Tibbits & Fullwood, 1783.
Stott, 1881.
Norton, 1938.
Hyatt, 2119.
Neilson, 2483.
Muratori, 2521.
Candy, 2625.
Norton, 2627.
Brannon, 2703.
Mulholland, 2772.
Hornblower, 2843.
Bates, 2912.
Macintosh, 2992.
Hyatt, 3124.
Norton, 3198.
Jupp, 3338.
Ellis, 3383.
Pender & Rae, 3398.

Flour and meal (storing and preserving):
Spencer, 993.

Flour (manufacturing). *See* "Grinding corn."

Flow of fluids (regulating the). *See* "Valves."

Flower pots:
Von Levetzow, 931.

Flowers (artificial):
Clubbe, 1585.

Flues and chimneys; cleaning chimneys; cowls:
Fernley, 12.
Smith, 91.
Newton (*Lorillard*), 212.
Girdwood, 307.
Mines and Evans, 387.
Jobson, 453.
Winstanley, 780.
Boulton, 874.
Lake (*Peters*), 933.
Atkins, 934.
Halliday, 962.
Newton (*Graham*), 1035.
Wrigley, 1069.
Mines, 1139.
Tildesley, 1224.
Bolton, 1231.
Jackson, 1308.
Chadwick, 1479.
Blunn & Wild, 1504.
Hunter, 1559.
Poupard & Thomson, 1609.
Sinclair, 1666.
Hodges, 2178.
Amos, 2245.
Webber, 2250.
Newton (*Martin*), 2425.
Smith, jun., 2455.
Goll (*Moll*), 2672.
Clark, 2688.
Brannon, 2703.
Buckley, Messrs., 2824.
Bates, 2912.
Kochs, 2939.
Papier, 2941.
Jordan, 2969.
Heywood & Whewell, 2993.
Johnson, 3032.
Silber & White, 3254.

Fluting and crimping. *See* "Goffering."

Flyers. *See* "Spindles."

Folding fabrics or piece goods. *See* "Finishing."

Folding paper, newspapers, circulars and advertisements:
Davies, 137.
Newton (*Hoe*), 1825.

Food for cattle:
Nutt & Selby, 71.
Corbett, 300.
Hutchinson, 318.
Doeg, 544.
Bolton, 678.
Dewar, 778.
Riddell, 923.
Erskine & Harrop, 960.
Laycock, 1310.
Granger & Hyan, 1381.
Olpherts, 1539.
Sinclair, 1930.
Newton (*Grimaldi*), 2579.
Marshall, 3119.
Perowne, 3255.
Harrison, 3421.

Food for man (preserving and preparing). *See* "Preserving food."

Foot-balls. *See* "Games."

Foot-paths. *See* "Road making."

Foot warmers:
Tomkins, 285.

Forcing air or gas through tubes, vessels, &c.:
Webber, 200.
Hancock & Pearse, 2025.
Kromschroeder, 2662.
Blick, 3156.
Gwynne & Beale, 3449.
Ruck, 3504.

Forcing houses. *See* "Horticulture."

Forges:
Seel & Shaw, 417.
Siecinoski (*Frisac*), 697.
Von Bolzano, 1349.
Newton (*Mackenzie*), 2546.
Lake (*Roots & Roots*), 2691.
Flower, 2694.
Lake (*Bell*), 3052.

Forging metals. *See* "Metals (forging)."

Forks and shovels. *See* "Spades."

Fortifications. *See* "Batteries."

Foundered vessels and wrecks (removing slime and sand from):
Bazin, 2289.

Fountains:
Walkland & Unwin, 241.
Common, 543.
Prosser, 2438.

Fraud (prevention of):
Haseltine (*Small*), 124.
Newton (*Slaesson*), 1263.
Nissen, 2449.
Lewis, 2468.
Robinson, 2757.
Calvert, 2776.
Flack, 2898.
Tronchon, 3016.
Harding, 3194.
Starr, 3201.

Freezing-machines. *See* "Refrigerating."

Fret cutting. *See* "Cutting wood."

Frilling, ruffling or gathering apparatus for sewing-machines:
Lake (*Cramp*), 2984.
Mabson, 3495.

Fringes. *See* "Trimmings."

Fruit (preserving):
Gedge (*Quilaverth*), 2698.

Fuel and fire lighters; saving fuel:
Furlonge & Churchill, 46.
Hogg, 156.
Newton (*Lorillard*), 212.
Jeffery & Luke, 260.
Chambers & Elton, 302.
Heginbottom, 304.
Church, 305.
Goreham, 385.
Mines & Evans, 387.
Barclay, 404.
Bromilow, 422.
Jobson, 453.
Franklin & Franklin, 457.
Roberts, 524.
Rennie, 541.
Bannehr & Matthews, 556.
Lodge, 632.
Bramwell, 657.
Sykes & Stokes, 658.
Siecinoski (*Frisac*), 697.
Wilson, 717.
Clarke, 848.
Nurse, 865.
Haseltine (*Leckie*), 909.
Lake (*Woodson*), 910.
Lake (*Peters*), 933.
Lake (*Winkler & Zitowitsch*), 948.
Boyman, 944.
Halliday, 962.
Kenworthy & Johnstone, 1127.
Crighton, 1145.
Schwartz, 1179.
Tildesley, 1224.
Grant, 1290.

**Fuel, &c.—*cont.***
Lake (*Perkins*), 1323.
Lake (*Brandt, Lehr, Fisher & Brecht*), 1327.
Aitken & McAlley, 1337.
Worrall, 1391.
Vansteenkiste & Barbe, 1401.
Johnson (*Hill & Thumm*), 1450.
Agnellet, 1499.
Blunn & Wild, 1504.
Huntly, 1536.
Long, 1552.
Gedge (*Robin, jun.*), 1558.
Moorhouse, 1620.
Galloway, 1623.
Gedge (*Dujour & Couppé*), 1645.
Sinclair, 1666.
Chatfield, 1752.
Hinchliffe, 1753.
Philpot (*Lucovich*), 1779.
Tessier, 1834.
Eaton, 1841.
Hargreaves & Robinson, 1928.
Hughes (*Hughes*), 1931.
Weir (*Weir*), 1936.
Galloway, 1958.
Siemens, 1959.
Davidson, 1962.
Dormoy, 1967.
Taylor, 1969.
Townsend, 1996.
Johnson (*De Langlade*), 2081.
Chatfield, 2142.
Johnson (*Berryman*), 2218.
Johnson (*Collingridge & Stephen*), 2261.
Edge, 2268.
Bateman, 2314.
Briart, 2315.
Newton (*Pike*), 2356.
Smith & Leech, 2373.
Newton (*Martin*), 2425.
Smith, jun., 2455.
Wallis & Steevens, 2537.
White, 2540.
Lake (*Potter*), 2599.
Davies & Eckersley, 2629.
Sidebottom, 2636.
Hunt (*Stone*), 2652.
Robinson, 2658.
Burrow, 2659.
Hartmann, 2678.
Butterworth & Heap, 2712.
Lodge, 2717.
Buckley, Messrs., 2824.
Whitelaw, 2840.
Roberts, Armitage & Haley, 2917.
Williams, 2959.
Barnes, 3019.
Vignon, 3040.
Douglas & Grant, 3044.
Hughan, 3060.
Mitchell & Mitchell, 3071.
Hinchcliffe & Milnes, 3097.
Dilnutt & Knowelden, 3101.
Jones & Jones, 3134.
Sutcliffe, 3179.
Parsell, 3207.
Crossley, 3226.
Newton (*Hauzeur*), 3228.
Clark (*Leblond & Mulot*), 3277.
Pinkus, 3359.
Warner, 3386.
Box (*Surowiez*), 3406.
Johnson (*Westerman*), 3423.
Lake (*Danks*), 3465.
Cochrane, 3482.

**Fulling and felting; felted fabrics:**
Cochrane, Messrs., 389.
McNicol, 1012.
Newton (*Graham*), 1035.
Green, 1421.
Bowden & Shaw, 1427.
Pearson, 1563.
Pearson, 1590.
Cocking, 2295.
Cocking, 2353.
Gedge (*Gaudafroy*), 2545.
Schuman, 2551.
Underwood & Adshead, 2561.
Carrington (*Crespin*), 3161.

**Fulling and felting, &c.—*cont.***
Cocking, 3283.
Jones, 3373.
Wilde, 3509.

**Fumigators:**
Bateson, 1137.

**Funnels or tundishes:**
Jones, 3186.

**Furling sails.** *See* "Ships' sails."

**Furnaces and cupolas:**
Cameron, 15.
Gaukroger & Handley, 34.
MacKean, 45.
Furlonge & Churchill, 46.
Allan, 113.
Barker & Bean, 114.
Robinson, 149.
Rider, 164.
Porter & Lane, 201.
Newton (*Lorillard*), 212.
Siemens, 292.
Heginbottom, 304.
Girdwood, 307.
Raper & Stephenson, 319.
Bessemer, 386.
Mines & Evans, 387.
Barclay, 404.
Seel & Shaw, 417.
Wilson, 419.
Bromilow, 422.
Jobson, 453.
Paget, 510.
Rowland, 512.
Rennie, 541.
Leffler, 598.
Addie, 628.
Blair, 635.
Corbett & Griffiths, 650.
Bramwell, 657.
Sykes & Stokes, 658.
Edwards, 672.
Barclay, 673.
Holt, 663.
Salmon, 695.
Wilson, 717.
Anderson, 718.
Wigg, 720.
Head, 754.
Kent, 813.
Munro, 822.
Newton (*Spencer*), 907.
Lake (*Woodson*), 910.
Lake (*Peters*), 933.
Atkins, 934.
Halliday, 962.
Jackson, 972.
Spencer, 993.
Southwood, 998.
Hunter, 1085.
Borgnet, 1092.
Heesom, 1102.
Kenworthy & Johnstone, 1127.
Spence, 1135.
Crighton, 1145.
Hydes & Bennett, 1161.
Tildesley, 1224.
Bolton, 1231.
Königs, 1305.
Von Bolzano, 1349.
Worrall, 1391.
Johnson (*Hill & Thumm*), 1450.
Clay, 1461.
Agnellet, 1499.
Blunn & Wild, 1504.
Hunter, 1559.
Kent, 1565.
Galloway, 1623.
Butterworth & Howarth, 1636.
Sinclair, 1666.
Birch, 1706.
Long, 1709.
Jordan, 1719.
Chatfield, 1752.
Hinchliffe, 1753.
Richardson, Messrs., & Spencer 1788.
Spence (*Perret, Bros. & Olivier*), 1807.

**Furnaces and cupolas—*cont.***
Perkins, 1823.
Mills (*Lewis*), 1877.
Wérotte, 1902.
Hargreaves & Robinson, 1928.
Mirchin, 1952.
Siemens, 1959.
Davidson, 1962.
Dormoy, 1967.
Thomson, 1982.
Barclay, 2076.
Johnson (*De Langlade*), 2081.
Ferrie, 2088.
Anderson, 2134.
Chatfield, 2142.
Adams, 2198.
Anderson, 2216.
Zenger, 2247.
Abel (*De Usera & Goujet*), 2258.
Edge, 2268.
Newton (*Mackenzie*), 2346.
Newton (*Pike*), 2356.
Smith & Leech, 2373.
Newton (*Martin*), 2425.
Wilson & Wood, 2478.
Gedge (*Bontems*), 2510.
Johnson (*Sellers*), 2612.
Davies & Eckersley, 2629.
Sidebottom, 2636.
Robinson, 2658.
Hartmann, 2678.
Butterworth & Heap, 2712.
Preston, 2811.
Buckley, Messrs., 2824.
Whitelaw, 2840.
Howson & Thomas, 2881.
Jordan, 2969.
Heywood & Whewell, 2993.
Vignon, 3040.
Douglas & Grant, 3044.
Siemens, 3077.
Garrett & Sons (*Kotzo*), 3084.
Hinchcliffe & Milnes, 3097.
Dilnutt & Knowelden, 3101.
Jones & Jones, 3134.
Roberts, 3148.
Bell, 3204.
Wilson, 3205.
Newton (*Hauzeur*), 3228.
Lake (*La Brêche-Viger*), 3246.
Macintire, 3247.
Somerville & Robinson, 3335.
Moffat, 3344.
Pinkus, 3359.
Russell & Russell, 3364.
Morris (*Pellieux & Maze-Launay*), 3400.
Webb, 3442.
Lake (*Mason*), 3464.
Lake (*Danks*), 3465.
Davis, 3475.
Anderson, 3493.
Wiborgh, 3505.

**Furniture:**
Pocock, 87.
Cooke, 94.
Chapman, 191.
Wilkes, 202.
Tysall, 308.
Shute, 331
Benson (*Gardner & Turrell*), 332.
Lake (*Rogers*), 339.
Reilly, 403.
Hammer, 413.
Henry (*De Laterrière*), 464
Wippell, 550.
Bunyard, 580.
Sarney & Sarney, 711.
Snowdon, 742.
Dee, 863.
Philip, jun., 917.
Descamps & Breh, 941.
Lafage, 990.
Wicks, 1177.
Schwartz, 1179.
Fisher, 1205.
Gardner, Lowe, Wood, Wood & Pickering, 1249.
Andrew, 1306.
Baker, 1317.
Newton (*Thompson*), 1362.
Fitzmaurice, 1457.
Hayes, 1473.

**Furniture—*cont.***
Lake (*Pullman*), 1524.
Wright, 1549.
Searle, 1580.
Houbé, Guinet & Lemarchand, 1594.
Hughes (*Sargent*), 1640.
Glover, 1674.
Lewis, 1712.
Blackburn, 1767.
Eastman, 1870.
Newton (*Palmer*), 1889.
Stokoe, 1971.
Upfill, 2041.
Pollock, 2117.
Wethered, 2235.
Lake (*Barret*), 2240.
Pollock & Pollock, 2322.
Pollock & Pollock 2328.
Cuff, 2410.
Gillingham, 2431.
Neilson, 2483.
Pinder, 2519.
Muratori, 2521.
MacCarthy, 2550.
Davey, 2553.
Moesch, 2608.
Neale, 2618.
Hughes, 2675.
Heinemann, 2783.
Mills (*Everickx*), 3059.
Evans, 3112.
Johnson, 3182.
Geering & Tidmarsh, 3203.
Wier, 3210.
Grove, 3252.
Ball, 3305.
Mawson, 3308.
Hughes (*Coit*), 3313.
Wood, 3419.
Frazer & Dillon, 3435.
McElcheran, 3446.

**Furniture covers:**
Lake (*McDaniel*), 1355.
Galland (*Muratori*), 3227.
Schuurman, 3306.

**Fuses.** *See* "Matches."

**Fuses** (making and discharging). *See* "Blasting."

## G.

**Gaffs.** *See* "Ships' masts."

**Gaiters.** *See* "Leggings."

**Galvanism.** *See* "Electricity."

**Galvanizing iron:**
Lorberg, 244.
Baldwin, 2327.

**Game traps.** *See* "Traps."

**Games and exercises:**
Stanford & Price, 61.
Mead, 303.
Reid, 875.
Oliver, 1234.
Cox, 1241.
Keily & Tipple, 1999.
Armstrong (*Hearne*), 2023.
Cocking, 2295.
Howard, 2801.
Norman, 3029.
Barrett, 3378.

**Garden engines:**
Pumphrey, 330.

**Garden frames.** *See* "Horticulture."

**Garden furniture:**
Newton (*Palmer*), 1889.
Mills (*Everickx*), 3059.
Clark (*D'Argy*), 3109.
Touaillon (*André & Fleury*), 3199.

**Garden ploughs.** *See* "Ploughing."

**Garden rollers:**
Ellis, 1799.

**Gargles.** *See* "Medicines."

**Garments for gentlemen's wear.** *See* "Wearing-apparel."

**Garters:**
Lake (*Armstrong*), 821.

**Gas and other burners and regulators; gas fittings; lighting gas:**
Johnson (*Merrill*), 11.
Hunt, 166.
Hughes, 291.
Clause, 379.
Newton (*Grimes*), 429.
Slater, 461.
Haseltine (*Dupas*), 475.
Horton, 596.
Wigham, 729.
Busch, 746.
Eyton, 748.
Tysoe, 1039.
Johnson (*Merrill*), 1178.
Duckham, 1210.
Tongue, 1478.
Waddington & Turner, 1581.
Hughes (*Sigl*), 1641.
Taylor, 1747.
Hollinshead, 1804.
Chameroy, 2033.
Goldsmith & Dilkes, 2063.
Johnson (*Langlade*), 2081.
Beasley, 2156.
Smith (*Bean*), 2157.
Grabham, 2180.
Breach, 2194.
Peebles, 2446.
Gedge (*Bontems*), 2510.
Verity, 2511.
Mathews, 2534.
Smith, 2670.
Lake (*Garrick*), 2699.
Holdsworth, 2767.
Sugg, 2844.
Evans, 2886.
Holmes, 2966.
Gent, 3023.
Newton (*Grave*), 3280.
Oggioni, 3330.
Verity & Verity, 3342.
Harrison, 3396.
Hurd, 3452.
Dawson, 3468.

**Gas (combining with air):**
Mather, 702.

**Gas engines.** *See* "Air-engines."

**Gas exhausters:**
Lake (*Cameron*), 838.
Lake (*Peters*), 1007.
Smith, 2507.

**Gas extinguishers:**
Smith (*Bean*), 2157.

**Gas fires.** *See* "Fireplaces."

**Gas making and purifying; gasometers:**
Darwin, 90.
Allan, 113.
Hunt, 166.
Porter & Lane, 201.
Mines & Evans, 387.
Balme & Crossley, 424.
Eveleigh, 443.
Haseltine (*Dupas & Barbarin*), 452.

**Gas making, &c.—*cont.***
Haseltine (*Dupas & Barbarin*), 472.
Bannehr & Matthews, 556.
Barclay, 673.
Wilson, 717.
Munro, 822.
Newton (*Davison*), 857.
Hollinshead, 939.
Spence, 1036.
Box, 1049.
Newton (*Elmer*), 1339.
Von Bolzano, 1349.
Darwin, 1382.
Dawlings (*Brough & Gilson*), 1406.
Johnson (*Hill & Thumm*), 1459.
Clay, 1461.
Allan & Moffat, 1555.
Kent, 1565.
Walker, 1735.
Hollinshead, 1804.
Hargreaves & Robinson, 1854.
Evans, 1857.
Dormoy, 1967.
Hancock & Pearse, 2025.
Barclay, 2076.
Johnson (*De Langlade*), 2081.
Balme & Crossley, 2139.
Scott, 2243.
Zenger, 2247.
Lake (*Potter*), 2599.
Walker, 2606.
Ball, 2609.
Still & Lane, 2655.
Scott, 2660.
Kromschroeder, 2662.
Macfarlane, 2734.
Duffee, 2795.
Spence, 2832.
Bell, Gregg & Kelly, 2845.
Chaudet, 2871.
Newton (*Messrs. Tessier*), 3115.
McCool, 3193.
Mann, 3263.
Somerville & Robinson, 3335.
Moffat, 3344.
Eveleigh, 3348.
Newton (*Elmer*), 3379.
Whitehead & Foster, 3410.
Clark (*Moussard*), 3416.
Clark (*Colacicchi*), 3447.
Cochrane, 3462.
Newton (*Wurtz*), 3503.
Ruck, 3504.

**Gaseliers.** *See* "Lamps."

**Gassing yarns and threads:**
Mather, 702.
Tysoe, 1039.
Bottomley, 1670.
Dawson, 3468.

**Gates.** *See* "Doors."

**Gauges:**
Budenberg, (*Schaeffer & Budenberg*), 456.
Broadbent (*Schäffer & Budenberg*), 681.
Butler, 726.
Eyton, 748.
Kirk, 1286.
Millward (*Millward*), 1505.
Davis, Ilbery, Isangk & Sullivan, 1680.
Dixon, 1741.
Mirchin, 1952.
Johnson (*Berryman*), 2218.
Lang & Reichart, 2342.
Rau, 2382.
Westinghouse, jun., 2436.
Hughes (*Harper*), 2495.
Napier, 2775.
Webb, 3442.

**Gauges or guide mechanism.** *See* "Propelling (machinery)."

**Gelatine:**
Clark (*Rice & Driggs*), 1009.
Smith, 2784.

**Generating force.** *See* "Motive-power."

**Generating steam.** *See* "Steam-boilers."

**Geometical curves and figures:**
Burstow, 312.

**Getting coal.** *See* "Mining."

**Gilding or laying gold powders on fabrics.** *See* "Bronzing."

**Ginning cotton.** *See* "Spinning (opening)."

**Glauber salts.** *See* "Medicines."

**Glass and its applications:**
Pilkington, 207.
Mottram (*Clive*), 287.
Heginbotton, 304.
Jennings, 400.
Johnson, (*Hyatt*), 437.
Webb, 832.
Robinson, Robinson & Skinner, 1121.
Newton (*Aronson*), 1131.
Stocker, 1149.
Baines, 1166.
Bird, 1193.
Richardson, 1291.
Lake (*Bartlett*), 1432.
Hyatt, 1482.
Blunn & Wild, 1504.
Robertson, 1523.
Libbey (*Bowie*), 1570.
Libbey (*Bowie*), 1664.
Willson, 1772.
Johnson (*Derogy*), 1852.
Hayward, 2014.
Parnacott, 2057.
Hyatt, 2116.
Stenger, 2183.
Zenger, 2247.
Scruton, 2399.
Sowerby, 2433.
Deffiis (*Mauger*), 2496.
Johnson (*French*), 2668.
Williams, 2787.
Swinburne, 2803.
Clark (*Morse*), 2934.
Rendle & Burrows, 3002.
Hughes (*Hoggson*), 3146.
Lake (*Bartlett*), 3217.
Crossley, 3226.
Webb, 3329.

**Glass (substitutes for):**
Clark (*D'Argy*), 3109.

**Glass papers.** *See* "Emery papers."

**Glasses (cases or cabinets for):**
Chapman, 191.

**Glazes.** *See* "Varnishes."

**Glazing saw blades.** *See* "Polishing."

**Gloves:**
Minns, 438.
Winn, 966.
Lake (*Brown, jun. & Buxton*), 1128.
Andrew, 1306.
White & White, 2148.
Guattari (*Baccellieri*), 2281.
MacCarthy, 2550.
Cooley, 3054.
Bertin, 3118.
Smyth, 3166.
Hall, 3314.
Kilpatrick & Cooke, 3394.

**Gloves for medical, surgical or chemical operations:**
Liston, 487.

**Glue:**
Pout (*Rolls*), 745.
Rock, 876.
Clark (*Rice & Driggs*), 1009.
Collins, 1840.

**Gluten:**
Dewar, 778.

**Glycerine:**
Abel (*Kraut*), 873.
Tiernan, 2724.
Fortoul, 3249.

**Goblets.** *See* "Cups."

**Goffering, crimping and fluting:**
Adams, 732.
Newton (*Myers*), 908.
Rath (*Keenan*), 1688.

**Governing the motion of "shedding wires:"**
Eccles, 335.
Greenwood, Mills & Pearson, 2514.
Crowley (*Gruinder*), 3491.

**Governors; speed and power indicators:**
Leask, 127.
Brotherhood & Kittoe, 143.
Rider, 164.
Hunt, 166.
Cochrane (*Guibal*), 173.
Davey, 277.
Allen (*Huntoon*), 352.
Budenberg (*Schaeffer & Budenberg*), 456.
Lake (*Cameron*), 838.
Dunlop, 852.
Allen (*Huntoon*), 1255.
Dawes, 1321.
Hopkinson, jun., 1358.
Allen, 1543.
Simonds, (*Weaver*), 1563.
Melling, 1681.
Shive, 1803.
Lake (*Denis*), 1907.
Newton (*Molard*), 2091.
Lake (*Utley & Ross*), 2238.
Finney, 2340.
Smith (*Folacci & Lamie*), 2395.
Westinghouse, jun., 2436.
Varley & Varley, 2596.
Lake (*Waters*), 2607.
Kinsey, 2614.
Wolfe, 3087.
Trotman, 3209.
Gauldie, 3229.
Holten, 3309.
Long, 3414.
Abel (*Rycx*), 3452.
Fawcett & Coulter, 3461.

**Gradings:**
Childs & Childs (*Sweet*), 3510.

**Grain and other crops (protecting from birds and insects):**
Fisher, 1500.
Gedge (*Lainé*), 1723.

**Grain and seeds (treating):**
Young, 248.
Hutchinson, 318.
Brazier, 444.
Boby, 676.
Rock, 876.
Spencer, 993.
Peverett, 1200.
Moubray, 1651.
Houghton, 1774.
Joannides, 1832.
Newton (*Fitts*), 2146.
Gedge (*Vigreux*), 2502.
Girdwood, 2535.
Gibbs, 2539.
Norton, 2571.
Jackson, 2603.
Clark (*Tamin*), 2631.
Gedge (*Quilaverth*), 2698.
Cowan & Cowan, 2723.
Greenhill, 2789.
Newton (*Powers*), 2968.
Woodbridge, 3175.
Chichester & Chichester, 3346.
Edlington & Edlington, 3453.
Childs, 3511.

**Grains or spent malt:**
Rock, 876.
Norton, 2571.
Jackson, 2603.

**Granaries:**
Spencer, 993.
Carpenter, 1279.

**Graphite.** *See* "Plumbago."

**Grappling and raising sunken bodies:**
Taylor, 3258.

**Gratings for roofs, areas, &c.:**
Johnson (*Hyatt*), 437.
Hyatt, 1482.
Hayward, 2014.
Hyatt, 2116.
Ashford, 2771.
Touaillon (*André & Fleury*), 3199.

**Gravitating rope bores.** *See* "Boring."

**Grease:**
Toepler, 1052.
Fenton, 1897.
Smart, 2143.
De La Peyrouse, 2260.
Mirfield & Scott, 2394.

**Green copperas.** *See* "Metallic salts."

**Grinding, crushing and pulverising corn, grain, seeds, &c.; dressing flour:**
Norton & Hawksley, 132.
Hutchinson, 318.
Wright, 516.
Patterson, 527.
Harding (*Gray*), 916.
Palmer, 969.
Mills (*Hutchinson*), 1044.
Rowe, 1206.
Cheesbrough (*Gray*), 1278.
Lake (*Simpson*), 1388.
Oliver, 1415.
Eyton, 1430.
Moubray, 1651.
Bate, 2016.
Prosser, 2249.
Behrns, 2304.
Carr, 2334.
Girdwood, 2535.
Trotman, 3209.
Chichester & Chichester, 3346.
Lake (*Webster & Hall*), 3349.
Hughes (*Dunham*), 3476.

**Grinding, crushing and pulverising ores, quartz, &c.:**
Willoughby, Messrs., 16.
Smith, 205.
Atkey, 259.
Goodman, 358.
Wright, 516.
Patterson, 527.
Bannehr & Matthews, 556.
Newall, 599.
Blair, 635.
Balmain (*Menzies*), 783.
Tregay, 905.
Borlase, 928.
Doble, 1077.
Lake (*Hooper*), 1096.
Newton (*Ryerson*), 1195.
Donald & Atkey, 1302.
Lake (*Simpson*), 1388.
Sholl, 1495.
Marsden, 1769.
Goodman, 2114.
Prosser, 2249.
Haseltine (*Mitchell*), 2299.
Greenhill, 2789.
Lake (*Webster & Hall*), 3349.

**Grinding and surfacing:**
Knowles & Hetherington, 228.
Durant (*Tucker & Snell*), 262.
Sharkey, 284.
Wilkinson, 499.
Smith, 506.
Towle (*Poole*), 877.
Lister & Reixach y Gispert, 1117.
Oliver, 1415.
Robertson, 1528.
Foster, jun., 1623.
Pratt (*Farmer & Hatcher*), 1861.
De Bergue & De Bergue, 1914.
Townsend, 1996.
Cross, 2230.
Clark (*Green*), 2331.
Barber, Barber & Baines, 2377.
Dronsfield, 2474.
Jackson, 2555.
Darlington, 2657.
Wood, 2918.
Edwards, 2982.
Osborn, 2994.
Gedge (*Petit*), 3173.

**Grinding cement and earths:**
Patterson & Patterson, 2354.
Lake (*Webster & Hall*), 3349.

**Grinding chemicals and drugs:**
Lake (*Simpson*), 1388.
Goodman, 2114.
Webster, 2810.
Hyatt, 3022.
Lake (*Webster & Hall*), 3349.
Hancock & Hancock, 3353.

**Grinding coprolites, guano and phosphates:**
Menzies (*Lewis*), 1311.
Lake (*Simpson*), 1388.
Haseltine (*Mitchell*), 2299.
Patterson & Patterson, 2354.
Johnson (*Messrs. Pilon*), 2803.

**Grinding litharge and colours:**
Lake (*Webster & Hall*), 3349.

**Grinding plants:**
Clark (*Baker*), 1846.
Greenhill, 2789.

**Grindstones.** *See* "Stone."

**Grottoes:**
Walkland & Unwin, 241.

**Guano.** *See* "Manure."

**Guiding and shunting tramway carriages from one line of rails to another.** *See* "Tramway carriages."

**Guiding ships, carriages, ploughs, &c.** *See* "Steering."

**Gumming yarns.** *See* "Sizing."

**Gums; gummy substances:**
Riddell, 923.
Smith (*Du Motay*), 1725.
Johnson (*Adamson*), 1853.
Johnson (*Adamson*), 2168.
Booth, 3298.

**Gun cotton.** *See* "Gunpowder."

**Gunpowder and other explosive compounds:**
Smith, 311.
Johnson (*Brown*), 532.
Sprengel, 921.
Schwartz, 1179.
Muschamp, 1336.
Patton & Piper, 1336.
Granger & Hyan, 1381.
Curtis, 1939.
Milbank, 2283.
Nicholson & Price, 2430.

**Gunpowder—*cont.***
Tooth, 2454.
Sprengel, 2642.
Watteeu (*De Terré & De Mercader*), 2715.
Haycraft, 2933.
Widgery, 3149.

**Guns.** *See* "Fire-arms."

**Gutta-percha (treatment and application):**
Newton (*Hunter*), 971.
Parnacott, 2070.
Lake (*De Wolfe*), 2106.
Davis & Struthers, 2256.
Chapman, 2440.
Gale & Boyden, 3376.

**Gutters.** *See* "Drains."


## H.


**Hair; substitutes for hair:**
Lake (*Salamon*), 1715.
Shaw & Shaw, 1826.
Collins, 1840.
Blick, 2012.
Johnson (*Adamson*), 2168.
Stauf, 2294.
Gibbs, 2539.
Evans, 2619.
Rydill, 2752.
Smith, 2784.

**Hair (applying artificial skins to):**
Tussaud & Tussaud, 1545.

**Hair dressing; chignons:**
Hanbury, 83.
Winn, 966.
Livsey (*Florence Manufacturing Co.*), 1304.
Symons (*Dotch*), 2923.
Macintosh & Boggett, 3140.
Perry, 3144.
Mabson, 3495.

**Hammers; hammering:**
Jeavons, 17.
Donald & Atkey, 1302.
Sholl, 1495.
Clarke (*Clarke*), 1527.
Vaughan, 1876.
Miller, 2060.
Lake (*Hershey, Geer, Dudley & Gaggin*), 2467.
Hardy, Stayner & Harrison, 2498.
Hardy & Stayner, 2527.
Davies & Leyland, 2622.
Gowans, 2644.
Stevenson, 2654.
Lake (*Garrick*), 2699.
Palmer, 3017.
Lake (*La Bréche-Viger*), 3246.
Bentall, 3307.

**Hammocks:**
Wethered, 2235.

**Hand-cuffs and shackles:**
Clark (*Tower*), 671.

**Hand-stamping machines.** *See* "Stamping machines."

**Harbours; ports:**
Ball, 445.
Cochrane, 2120.
Bazin, 2289.
D'Humy, 3041.
Leigh, 3411.

**Harness and saddlery:**
Huckvale, 82.
Minns, 438.
Gossip, 841.
Garnett, 1360.
Parkin, 1677.
Mignot, 2236.
Curtis, 2321.
Simpson, 2390.
Vincenzo Count di Tergolina, 2499.
Serre (*Chagnaud*), 2610.
Stevenson, 2914.
Hall, 3106.
Galland (*Muratori*), 3237.
Prosser, 3251.
Hall, 3314.

**Harvesters.** *See* "Reaping."

**Hasps or latches.** *See* "Locks."

**Hat plush (manufacturing).** *See* "Weaving carpets."

**Hatching eggs and rearing the young when hatched:**
Hunt (*Stone*), 3360.

**Hats, caps, bonnets; coverings for the head:**
Roadknight, 8.
Aldridge, 959.
Leneven, 1020.
Eaton & Dunkerley, 1047.
Hart, 1132.
Lake (*McDaniel*), 1355.
Wheble, 1398.
Green, 1421.
Bowden & Shaw, 1427.
Pulvermacher, 1460.
Barford, 1560.
Sproul, 1638.
Abel (*Chevrillon*), 1894.
Brewer (*Edard & Bazault*), 1947.
Parnacott, 2070.
Cocking, 2295.
Underwood & Adshead, 2561.
Aldridge, 2665.
Henry & Henry, 2751.
McCalla, 2769.
Mace, 2836.
Hart, 2901.
Carrington (*Crespin*), 3161.
Reed, 3220.
Freystadt, 3267.
Gaunt & Hudson, 3276.
Armstrong, 3332.
Jones, 3373.
Davies, 3469.
Clark (*Love*), 3488.
Wilde, 3509.

**Hay and straw (drying):**
Gibbs, 2539.
Norton, 2571.

**Haymaking.** *See* "Reaping."

**Head-rests for railway passengers:**
Buckland, 3253.

**Healds:**
Hadfield, 659.
Holding, 733.
Jackson & Jackson, 1000.
Holding, 1848.
Nutter, 2995.

**Hearths for fire-places:**
Neilson, 2483.

**Heating and evaporating; regulating heat:**
Norton & Davies, 36.
Furlonge & Churchill, 46.
Hays, 111.
Warwick, 163.
Waterson, 174.
Tommasi, 175.
Young, 246.
Clark (*Ellis*), 261.

**Heating, &c.—*cont.***

Church, 305.
Adamson, 344.
Graddon, 384.
Mines & Evans, 387.
Johnson (*Wheeler*), 388.
Barclay, 404.
Wilson, 419.
Bromilow, 422.
Cannell, 436.
Eveleigh, 443.
Jobson, 453.
Haseltine (*Dupas & Barbarin*), 472.
Douglas, 507.
Haseltine (*Leggo*), 518.
Jones & Hacking, 521.
Roberts, 524.
Haseltine (*Perkins, Moulton & Sawyer*), 528.
Warren, 537.
Rennie, 541.
Lodge, 632.
Kaeuffer, 644.
Barclay, 673
Robertson, 690.
Mather, 702.
Anderson, 718.
Head, 754.
Munro, 822.
Phillips & Hacking, 823.
Field, 870.
Rock, 876.
Kempe & Kempe, 883.
Haseltine (*Leckie*), 909.
Greig & Eyth, 980.
Southwood, 998.
McNicol, 1012.
Cox, 1053.
Ashton, 1063.
Rigby, 1098.
Crighton, 1145.
Hydes & Bennett, 1161.
Schwartz, 1179.
Oram, 1183.
Von Bolzano, 1349.
Granger & Hyan, 1381.
Vansteenkiste & Barbe, 1401.
Newton (*Keegan*), 1422.
Johnson (*Hill & Thumm*), 1450.
Agnellet, 1499.
Marchisio, 1579.
Galloway, 1628.
Moubray, 1651.
Sinclair, 1666.
Birch, 1706.
Robertson, 1746.
Brough & Fletcher, jun., 1777.
Kaeuffer, 1794.
Skinner, 1795.
Spence (*Perret, Bros., & Olivier*), 1807.
Tessier, 1834.
Mills (*Lewis*), 1877.
Fenton, 1897.
Wérotte, 1902.
Hargreaves & Robinson, 1928.
Sinclair, 1930.
Morrison, 1955.
Siemens, 1959.
Dormoy, 1967.
Tongue (*De Laharpe & Fouché*) 2006.
Silber & White, 2007.
Goldsmith & Dilkes, 2063.
Kaiser, 2068.
Barclay, 2076.
Johnson (*De Langlade*), 2081.
Beckett & Cam, 2109.
Cochrane, 2120.
Hodges, 2178.
Adams, 2198.
Anderson, 2216.
Johnson (*Berryman*), 2218.
Paget & Asher, 2228.
Amos, 2245.
Zenger, 2247.
Campbell (*Campbell*), 2285.
Newton (*Martin*), 2425.
Prosser, 2438.
Gedge (*Bontems*), 2510.
Baudot & Roettger, 2531.
Wallis & Steevens, 2537.
Gedge (*Gaudefroy*), 2545.
Gorcham, 2588.
Lake (*Potter*), 2599.

**Heating, &c.—*cont.***

De Lobstein, 2623.
Sidebottom, 2636.
Kromschroeder, 2662.
Clark, 2688.
Templeton, 2709.
Lodge, 2717.
Bull & Hall, 2747.
Crosland, 2749.
Jackson, 2812.
Buckley, Messrs., 2824.
Chaudet, 2871.
Mundy, 2876.
Webb, 2884.
Roberts, 2907.
Kochs, 2939.
Holmes, 2966.
Newton (*Powers*), 2968.
Gent, 3023.
Willison, 3026.
Mitchell & Mitchell, 3071.
Dodge, 3147.
Blick, 3156.
Sutcliffe, 3179.
Allen, 3202.
Parsell, 3207.
Körting, 3225.
Newton (*Hauzeur*), 3228.
Robertson, 3232.
Macintire, 3247.
Silber & White, 3254.
Gaunt & Hudson, 3276.
Johnson (*Muller*), 3289.
Booth, 3298.
Verity & Verity, 3342.
Chichester & Chichester, 3346.
Newton (*Elmer*), 3379.
Harrison, 3396.
Johnson (*Westerman*), 3423.
Clark (*Colacicchi*), 3447.
Lake (*Mason*), 3464.
Lake (*Danks*), 3465.
Hughes (*Twining*), 3474.
Davis, 3475.
Cochrane, 3482.
Anderson, 3493.
Wilde, 3509.

**Heating or warming buildings:**

Ritchie, 185.
Mee, 315.
Truswell & Truswell, 535.
Kendall, 738.
Clarke, 848.
Lumby, 854.
Lake (*Winkler & Zitowitsch*), 943.
Mines, 1140.
Oram, 1183.
Green, 1301.
Granger & Hyan, 1381.
Chadwick, 1479.
Vaughan, 1876.
Douglas, jun., 1892.
Simpson, 2009.
Roberts, 2066.
Webber, 2250.
Smith, jun., 2455.
Waller, 2593.
Lake (*Potter*), 2599.
Butterworth & Heap, 2712.
Welsh, Hope & Stevenson, 2761.
Tayler, 2778.
Evans, 2886.
Bates, 2912.
Machen, 2921.
Gent, 3162.
Lankester, 3242.
Ebdy, 3297.
Wilde, 3509.
Calantarients, 3517.

**Heating or warming carriages:**

Tomkins, 285.
Shackleton, 1309.
Isherwood, 1941.

**Heckling fibrous materials.** *See* "Spinning (carding)."

**Heliostats:**

Thomson, 810.

**Helmets.** *See* "Hats."

**Hides and skins.** *See* "Leather."

**Hinges.** *See* "Joining."

**Hoes and harrows.** *See* "Ploughing."

**Hoes (plantation):**

Edwards, 1196.
Mold & Mold, 1856.
Hardy & Stayner, 2527.

**Hoists, cranes and windlasses; raising and lowering heavy bodies:**

Duncan, 62.
Lungley, 210.
Benson (*Gardner & Turrell*), 332.
Henley, 396.
Henderson, 397.
Fisken, 554.
Paul & Paul, 585.
Glover, 609.
Davies & Hutchinson, 612.
Tenwick, 626.
Corlett, 670.
Wallis & Steevens, 696.
Tasker, jun., 725.
Winstanley, 780.
Cherry, 809.
Tannett, Craven & Fox, 1108.
Lake (*Jordeson*), 1202.
Hopkinson, 1204.
Wallis & Steevens, 1267.
Thompson, 1270.
Law & Bennison, 1312.
Meiklejon, 1402.
English & Wilson, 1465.
Clarke & Hughes, 1481.
Lake (*Scott*), 1503.
Walker, 1571.
Wilson, 1625.
Purves, 1805.
Morgan, 1893.
Tongue (*De Laharpe & Fouché*), 2006.
Guinotte, 2094.
Glover, 2370.
Griffin (*Chadborn & Coldwell*), 2397.
Healey, 2415.
Dietrichson, 2476.
Smith, 2507.
Kilner, 2543.
Harper, 2600.
Kinsey, 2614.
Lake (*Gould*), 2651.
Parlour, 2664.
Dunn, 2748.
McAdam, 2861.
Eades & Eades, 2999.
Hall, 3050.
Hughes, 3129.
Newton (*Otis & Otis*), 3135.
Wilkerson, jun., 3137.
Taylor, 3258.
Harrison, 3363.
Newton (*Otis & Otis*), 3430.
Grace, 3492.
Johnson (*Colton*), 3507.

**Hooks**

Meiklejon, 1402.
Lake (*Woods*), 1706.
Kilner, 2543.

**Hooks and eyes:**

Tubbs, 1463.
Wier, 3210.

**Hoops, metal banding and bale ties:**

Chapman, 28.
Lismann, 66.
Stiff (*Long*), 231.
Wheeldon, 555.
Lindon, 574.
Downes, 625.
Seekings, 1256.
Sparrow, 1502.
McNabb, 1607.
Edwards (*Brodie*), 1764.
Lake (*Brett*), 2151.
Lake (*Butler*), 3264.

**Hop growing:**
Parlour, 1016.
Coleman & Morton, 1630.

**Hops:**
Rock, 876.
Curtis, 2040.

**Horn.** *See* "Bones."

**Horse-shoes; shoeing horses:**
Ellis & Gilbert, 52.
Rowatt, 77.
Pringle, 93.
Crossman & Ferguson, 98.
Colls, junior, 161.
Johnson (*Nes*), 866.
Wise (*Kastner*), 1095.
Rogers, 1284.
Crossman & Ferguson, 1654.
Saunders, 1835.
Upton, 2102.
Fryer & Steers, 2458.
Parkin & Lewis, 2885.
Greaves, 3065.
Beeson, 3155.
Sims, 3185.
Clinch, 3485.
Kelley, 3498.

**Horticulture; horticultural buildings; forcing houses:**
Lascelles, 72.
Mee, 315.
Truswell & Truswell, 535.
Von Levetzow, 931.
Parlour, 1016.
Fisher, 1500.
Lee & Rogers, 1597.
Fowke, 1621.
Macintosh (*Comstock*), 1637.
Giles (*Spratt*), 1672.
Gedge (*Lainé*), 1723.
Mold & Mold, 1856.
Douglas, jun., 1892.
Marsden, 1981.
Simpson, 2009.
McLachlan, 2087.
Newton (*Hayes*), 2210.
House, 2275.
Horley, 2357.
Griffin (*Chadborn & Coldwell*), 2397.
Tayler, 2778.
Machen, 2921.
Rendle & Burrows, 3002.
Howitt, 3113.
Gent, 3162.
Touaillon (*André & Fleury*), 3199.
Wilde, 3509.

**Hot closets.** *See* "Drying."

**Hulling corn, grain and seeds.** *See* "Thrashing."

**Husks or shellings of grain (used as fuel).** *See* "Fuel."

**Hydrants;**
Hollinshead, 939.

**Hydraulic motive-power.** *See* "Waterwheels."

**Hydrocarbons.** *See* "Oils of tar."

**Hydrometers:**
Blaise, 2594.
Hughes (*Krausse*), 2847.

**Hydro-pneumatic engines and hammers:**
Galloway, 1958.
Miller, 2060.

**Hygrometers:**
Woodbury (*Smith*), 948.


## I.


**Ice.** *See* "Refrigerating."

**Incrustation and sediment (preventing).** *See* "Oxidation."

**Incubators.** *See* "Hatching."

**Indexes and catalogues:**
Dunlop, 945.
Stevens, 2590.

**India-rubber (treatment and application):**
McEvoy, 10.
Mitchell, 30.
Oldroyd, 47.
Hanbury, 83.
Swan, 99.
Stewart, 104.
Pendred, 194.
Butler, 232.
Macintosh, 242.
Quin & Eastham, 356.
Wilson, 534.
Warren, 537.
Stoner, 570.
Sutherland, 640.
Lee & Lee, 684.
Robertson, 690.
Barnes, jun., 704.
Paterson, 724.
Osselin, 728.
Waller, 770.
Pinchbeck, 787.
Moseley, 862.
Riley, 895.
Johnson (*Albrecht*), 968.
Newton (*Hunter*), 971.
Lafage, 990.
Mackinder, 1005.
Day, 1010.
Walker, 1151.
Harris, 1155.
Meiter, 1156.
Tribe, 1171.
Macintosh & Boggett, 1226.
Anderson, 1242.
Paget (*Lemoine*), 1257.
Day (*Campbell & Clark*), 1259.
Firth, 1268.
Stewart, 1333.
Reynolds & Mays, 1342.
Newton (*Thompson*), 1362.
Day, 1364.
Granger & Hyan, 1381.
Walker, 1413.
Whitworth, 1438.
Bottomley & Haggis, 1515.
Somzé, 1622.
Scott, 1691.
Newton (*Phelps*), 1756.
Lake (*Bartlett*), 1796.
Johnson (*Derogy*), 1852.
Hutchinson, 1906.
Galloway, 1958.
Stewart, 2035.
Lake (*De Wolfe*), 2106.
Lake (*Wittram*), 2138.
Jochumsen, 2207.
Johnson (*Smart*), 2282.
Chapman, 2440.
Norton, 2627.
Cole, 2650.
Howlett, 2716.
Heywood, 2720.
Perkins, 2818.
Haworth, 2821.
Turner, 2843.
Harris, 2846.
Hughes (*Krausse*), 2847.
Pidding, 2873.
Clark (*Lavater & Michel*), 2910.
Moseley, 2927.
Barns, 2986.
Farmer, 3013.
Baker, 3133.
Macintosh & Boggett, 3140.
Paterson, 3213.

**India-rubber—*cont.***
Greig & Greig, 3290.
Gale & Boyden, 3376.
Jaques & Sterne, 3457.
Clinch, 3485.
Wightman, 3487.

**Indicating boiler pressure.** *See* "Gauges."

**Indicating distance of objects:**
Stephens, 1998.

**Indicating number of passengers entering or leaving vehicles and public buildings:**
Harding, 323.
Tatters, 412.
Wright, 621.
Miller, 2405.
Henley & Horstman, 2800.
Grace, 3020.
Harding, 3194.
Starr, 3201.

**Indicating pressure in cheese making:**
Oatley, 2175.

**Indicating quantity of goods, warehoused or discharged:**
Hall, 3050.

**Indicating rolling of ships:**
Husband, 280.

**Indicating speed and motion of carriages and ships:**
Harding, 323.
Davis, Ilbery, Isangk & Sullivan, 1680.
Napier, 2775.
Harding, 3194.
Vojacek, 3334.

**Indicating speed and power of electric impulses or waves:**
Harrison, 1635.

**Indicating speed of engines.** *See* "Governors."

**Indicating the working of breaks:**
Naylor, 3088.

**Indicating value of articles weighed:**
Newton (*Allen & Allen*), 1252.
Loughton, 2741.

**Indicating velocity of currents of air:**
Cochrane (*Guibal*), 173.
Broadbent (*Schäffer & Budenberg*), 681.
Tylor, 3339.

**Indicating weight.** *See* "Weighing."

**Indicating when guns are loaded or discharged:**
Wallis, 3318.

**Indigo.** *See* "Dyes."

**Infants' head dresses.** *See* "Hats."

**Infusions and decoctions:**
Hutchinson, 1906.
Curtis, 2040.
Leadbetter, 2290.

**Inhaling vapours.** *See* "Medical treatment."

**Injectors for steam-boilers:**
Sharp, 159.
Budenberg (*Mühlrad*), 454.
Butler, 726.
Lake (*Winkler & Zitowitsch*), 943.
Körting, 1055.
Welch, 1423.
De Bergue (*Dalmau y Sala*), 1551.
Philpot (*Lucovich*), 1779.
Weir (*Weir*), 1936.
Clark (*Petitpierre*), 2616.
Friedmann, 2750.
Webb, 2985.
Körting, 3225.

**Inks; inking; inkstands:**
Millar, 371.
Cropper (*Bainbridge & Yorkston*), 675.
Lake (*McIlvaine, Lloyd & Firth*), 689.
Lambert, 1124.
Adam, 1540.
Barrett & Wright, 1562.
Boynton, 1564.
Newton (*Hoe*), 1825.
Hunt (*Gariel*), 1895.
Bremner, 1989.
Whitehouse, 1998.
Hyatt, 2118.
Wheatstone & Stroh, 2172.
Little, 2286.
Jermain (*Gordon*), 2369.
Clark & Muirhead, jun., 2418.
Stokes, 2624.
Johnson (*French*), 2668.
Walker, 2674.
Pinkney, 2745.
Edwards, 2799.
Lake (*Catlin*), 2828.
Pollock, 2940.
Abbott, 2957.
Ricketts, 3163.
Greig & Greig, 3290.
McCready, 3365.
Barrett & Wright, 3374.
Goubet & Monrocq, 3506.

**Inlaying; mosaic work:**
Tyzall, 308.
Descamps & Breh, 941.
Neilson, 2483.
Davey, 2553.
Norton, 2627.

**Insects (destroying):**
Spencer, 993.
Bateson, 1137.
Tongue, 1478.
Gedge (*Lainé*), 1723.
Macfarlane (*Van Wagner*), 3243.

**Insects (keeping off):**
Huch, 2459.

**Insulating wire:**
McEvoy, 10.
Guest & Craddock, 144.
Warren, 537.
Newton (*Graham*), 1035.
Wright (*Minor & Britton*), 1208.
Day, 1364.
Croakey (*McKinley*), 1842.
Parnacott, 2067.
Lake (*De Wolfe*), 2106.
Davis & Struthers, 2256.
Chapman, 2440.

**Invalid caps:**
Sproul, 1638.

**Invalid carriages and furniture:**
Ullithorne, 591.
Wicks, 1177.
Fitzmaurice, 1457.
Samuels, 1569.
Glover, 1674.
Galloway, 1958.
Wethered, 2235.
Lake (*Barret*), 2240.
Gillingham, 2431.
MacCarthy, 2550.

**Invalid carriages, &c.—*cont.***
Moesch, 2608.
Leatham, 2726.
Evans, 3112.
Johnson, 3182.
Ball, 3305.

**Iodine:**
Tessier, 1834.
Morris (*Pellieux & Masé-Launay*), 3448.

**Iron surfaces (fluids for cleaning):**
Baldwin, 2327.

**Ironing; box irons; sad irons:**
Newton (*Myers*), 908.
Silk & Wells, 1452.
Robertson, 1746.
Sanson, 2036.
Goldsmith & Dilkes, 2063.
Hodges, 2178.
Clark (*Gaensly & Bueger*), 2199.
Phillips, 2206.
Cross, 2230.
Clark, 2412.
Newton (*Rennselaer*), 2598.
Houghton, 3157.

**Irrigating.** *See* "Watering streets."

**Ivory.** *See* "Bones."

## J.

**Jacquard machines.** *See* "Weaving."

**Japanning:**
Jeffreys, 450.
Newton (*Graham*), 1035.
Cadman, 1148.
Perry (*Verster*), 1685.
Chapman, 2440.

**Jars and stoppers:**
Butler, 232.
Rattray, 348.
Strauss, 1810.
Hall, 2663.
Pritchard, 3320.

**Jellies:**
Clark (*Tamin*), 2631.
Crane & McGrath, 2989.

**Jetties.** *See* "Piers."

**Jewellery; jewel cases:**
Swain, 669.
Hart, 930.
Richards, Lawrence & Lingard, 935.
Wall, 1824.
Littlehales, 1995.
Durand, 2010.
Allanson & Pearson, 2078.
Jacob, 3111.
Ricketts, 3163.
Selfe, 3389.
Stagg, 3513.

**Joining, coupling, joints and hinges:**
McEvoy, 10.
Norton & Davies, 36.
Messenger, 53.
Norman, 67.
Pringle, 93.
De Kierskowski, 193.
Green, sen., 270.
Adamson, 344.
Taylor & Adams, 355.
Hammer, 413.
Wilson, 418.
Parker & Esson, 430.
Tweedy, 432.

**Joining, &c.—*cont.***
Warren, 537.
Walsh, 553.
Cotterill & Biddle, 572.
Cake (*Clemens*), 602.
Downes, 625.
Bothams, 637.
Restell, 639.
Swain, 669.
Robins, 677.
Tylor, 685.
Feldtmann (*Gehrckens*), 692.
Robinson, 700.
Barnes, jun., 704.
Head, 754.
Sarney, 851.
Kempe & Kempe, 883.
Johnson (*Fish*), 897.
Johnson (*Schmid*), 906.
Winn, 966.
Smith (*Fairman*), 1013.
Harlow, 1033.
Biddulph, 1070.
Newton (*Thompson*), 1104.
Pierce, 1125.
James, 1133.
Murray, 1153.
Howard & Bousfield, 1163.
Barber (*Forbes*), 1212.
Naylor, 1245.
Ogilvie, 1300.
Shackleton, 1309.
Newton (*Crane*), 1354.
Perkins, 1379.
Fleming, 1397.
Silk & Wells, 1452.
Pulvermacher, 1460.
Tongue, 1478.
Chadwick, 1479.
Shaw, 1497.
Searle, 1580.
Somzé, 1622.
Benson (*Burdett*), 1658.
Burns, 1671.
Mackinder & Johnson, 1694.
Pinder, 1695.
Lidderd, 1701.
Lewis, 1712.
Taylor, 1747.
Farrel, 1761.
Skinner, 1795.
Lake (*Bartlett*), 1796.
Perkins, 1822.
Brown, 1838.
Gedge (*Creissard, Bros.*), 1864.
Mills (*Lewis*), 1877.
Warner & Brooke, 1919.
Rogers, 1924.
Du Vallon, 1951.
Lake (*Chisholm*), 1965.
Clark (*Lathrop*), 1976.
Wood & Wilde, 1987.
Littlehales, 1995.
Liardet, 2013.
Stockwell (*Howe Machine Co.*), 2030.
Upfill, 2041.
Fairlie, 2043.
Turner, 2065.
Hyatt, 2116.
Pollock, 2117.
Gaunt, 2129.
Watson & Andrews, 2223.
Campbell, 2234.
O'Connor, 2241.
Webb, 2263.
Fothergill-Cooke, 2313.
Pollock & Pollock, 2322.
Pollock & Pollock, 2328.
Goulding, 2381.
Westinghouse, jun., 2436.
Peebles, 2446.
Taylor, 2473.
Bailey, 2528.
Mathews, 2534.
Huggins, 2542.
Kilner, 2543.
Pécaud, 2546.
MacCarthy, 2550.
Lees, 2565.
Scott, 2736.
Harland, 2756.
Gurrin, 2766.
Brady, Dresser & Harris (*Washburn*), 2788.

**Joining, &c.—*cont.***
Perkins, 2819.
Sugg, 2844.
Clark (*Herrmann*), 2852.
Lawson (*Goodwin*), 2872.
Kochs, 2939.
Mills (*Everickx*), 3059.
Bracken, 3107.
Curliss, 3128.
Roberts, 3148.
Widgery, 3149.
Smith (*Messrs. Tiranoff & Kousakoff*), 3164.
Goering & Tidmarsh, 3203.
Rogers, 3236.
Prosser, 3251.
Grove, 3252.
Bray, 3367.
Matthew, 3382.
Taber (*Potter*), 3417.
Johnson (*Westerman*), 3423.
Kelley, 3498.

**Jugs; ice pitchers:**
Fox, 1435.
Bousfield (*Goddard & Adams*), 2064.

**Julienne.** *See* "Preserving food."

**Jupons.** *See* "Dresses, &c."

## K.

**Kelp.** *See* "Sea-weed."

**Kettles:**
Newton (*Graham*), 1035.
Hughes (*Jessup*), 2547.

**Keys.** *See* "Locks."

**Kiers:**
Mason, jun., 1722.

**Kilns:**
Goreham, 385.
Roberts, 524.
Bramwell, 657.
Newton (*Spencer*), 907.
Wrigley, 1069.
Tildesley, 1224.
Jackson, 1308.
Gedge (*Robin, jun.*), 1558.
Hunter, 1559.
Kent, 1565.
Moffatt & Henley, 1827.
Cochrane, 2120.
Goreham, 2588.
Pow, 2760.
Swinburne, 2808.
Johnson, 3032.
Duncan & Robertson, 3197.
Crossley, 3226.
Johnson (*Muller*), 3289.
Stanley & Stanley, 3291.

**Kiosques:**
Touaillon (*André & Fleury*), 3199.

**Knapsacks:**
Minns, 438.
MacDowall, 955.
White, 1188.

**Kneading.** *See* "Mixing."

**Knee caps:**
Cooley, 3054.

**Knife cleaners:**
Speight, 1011.
Townsend, 1996.
Thomas, 2048.

**Knitting machines:**
Willatt, Gee & Goss, 573.
Hadfield, 659.
Campion & Campion, 660.
Tongue (*Merrill*), 740.

**Knitting machines—*cont.***
Christoffers, 878.
Redpath, 994.
Lake (*Howe & Sommerville*), 1830.
Gedge (*Benoit, Peyron & Germain, jun.*), 1909.
Brewer (*Appleton*), 1945.
Pilbeam, 2127.
Redpath, 2729.
Onion, 2839.
Woodward, 3009.
Mackew, 3048.
Cooley, 3054.
Lamb & Lowe, 3068.
Cotton, 3467.
Woodward, 3480.

**Knives and forks:**
Blackwell & Bradshaw, 55.
Yeates, 112.
Haseltine (*Spénard & Letourneux*), 476.
Wilkinson, 499.
Maxfield & Maxfield, 558.
Sanders, 837.
Smith, 957.
Nixon & Winterbottom, 970.
Lister & Reixach y Gispert, 1117.
Bertram (*Bertram*), 1303.
Jervis, 1721.
Townsend, 1996.
Bousfield (*Goddard & Adams*), 2064.
Lake (*Laurence*), 2360.
Wood, 2918.
Turney, 3310.
Ireland, 3350.

## L.

**Labels and labelling.** *See* "Stamps."

**Lace-making:**
Carver, 529.
Carver, 797.
Smith (*Deschamps & Oudit*), 2015.
Sibert, 2136.
Burton & Mellers, 2264.
Martin, 2479.
Gibson, 2961.

**Lacs.** *See* "Resin."

**Lactometers:**
Blaise, 2594.

**Ladders:**
Webb, 818.

**Ladies' companions:**
Avery, 1322.

**Lamp wicks.** *See* "Wicks."

**Lamps, lanterns, gaseliers, chandeliers, candlesticks; lamp furniture, glasses and shades:**
Johnson (*Merrill*), 11.
Adie, 60.
Ritchie, 185.
Walkland & Unwin, 241.
Mines & Evans, 387.
Newton (*Grimes*), 429.
Haseltine (*Dupas & Barbarin*), 452.
Haseltine (*Dupas & Barbarin*), 472.
Rowatt, jun., 569.
Horton, 596.
Larsen, 636.
Douglass, 792.
Webb, 818.
Skelton, 1087.
Newton (*Aronson*), 1131.
Mines, 1140.
Johnson (*Merrill*), 1178.
Lake (*Trudeau*), 1207.
Richardson, 1291.
Mitchell & Mayo, 1383.

**Lamps, &c.—*cont.***
Lake (*Bartlett*), 1432.
Elsner, 1443.
Plimsoll, 1448.
Gooderham, 1484.
Agnellet, 1499.
Griffiths, 1523.
Allan & Moffatt, 1555.
Lee & Rogers, 1597.
Hogg, 1742.
Taylor, 1747.
Hollinshead, 1804.
Bachhoffner, 1809.
Irvine, 1896.
Bright, 1915.
Qurin & Essl, 1934.
Lewtas, 1942.
Silber & White, 2007.
Hancock & Pearse, 2025.
Darling, 2050.
Smith (*Bean*), 2157.
Gedge (*Le Bret*), 2171.
Rau, 2382.
Miller, 2405.
Kaye, 2457.
Deffis (*Mauger*), 2496.
Gedge (*Bontems*), 2510.
Verity, 2511.
Mathews, 2534.
Wier, 2585.
Johnson (*French*), 2668.
Goll (*Moll*), 2672.
Yates, 2677.
Douglass, 2686.
Steele, 2817.
Evans, 2886.
Papier, 2941.
Holmes, 2966.
Plimsoll, 3057.
Kemp (*Parry*), 3075.
Field & Cotton, 3078.
Smith, 3090.
Clark (*D'Argy*), 3109.
Blick, 3156.
Eley, 3181.
Lake (*Bartlett*), 3217.
Silber & White, 3254.
Newton (*Grave*), 3280.
Webb, 3329.
Ogrioni, 3350.
Adie, 3397.

**Lard:**
Stapfer & Dean, 942.

**Larvae of may-bugs (destroying).** *See* "Insects."

**Lasts:**
Denempont & Denempont, 2333.

**Latches.** *See* "Locks."

**Lathes.** *See* "Turning."

**Lavatories, wash stands and appliances:**
Smith, 274.
Heyworth, 474.
Tylor, 685.
Olver, 714.
Winn, 966.
Brown, 1859.
Mann, 2755.
Tylor, 2946.
Miccio, 3042.
Anderson, 3455.

**Lawn-mowers.** *See* "Horticulture."

**Laystalls.** *See* "Cesspools."

**Leather, skins and hides; artificial leather:**
Harrington, 109.
White, 264.
Lake (*Warth & Jobbins*), 293.
Lockwood, 376.
Somervell, 615.
Denne & Hentschel, 730.
Stocks & Stocks, 830.

**Leather, &c.**—*cont.*
Eyton, 1028.
Haley, Messrs., & Paul, 1217.
Francis, Bayley & Bayley, jun., 1225.
Turney, 1351.
Clark (*Havemeyer*), 1352.
Lake (*McDaniel*), 1355.
Broel, 1507.
Tussaud & Tussaud, 1545.
Lake (*Hidden*), 1653.
Charles & Taylor, 1738.
Casthelaz & Depoully, 1879.
Jones, 1961.
Turney, 1980.
Weston, 2069.
Hunt (*Hacker*), 2144.
Lake (*Robertson*), 2298.
Priestman & Priestman, 2319.
Harrington, 2423.
Halliwell, 2453.
Harrington & Richards, 2538.
Smith, 2784.
Shaw (*Watteau*), 2798.
Booth, 2850.
Anderson, 2862.
Chandet, 2871.
Brown, 2888.
Briggs, 2971.
Gedge (*Dérégnaucourt*), 3122.
Galland (*Muratori*), 3227.
Shaw (*Watteau*), 3288.
Priestman & Priestman, 3296.
Turney, 3310.
Vickers, 3371.
Gale & Boyden, 3376.
Anderson, 3456.
Shaw (*Watteau*), 3477.

**Leaves (artificial).** *See* "Flowers."

**Leggings; gaiters; leg guards:**
Johnson (*Wells*), 949.
Frankenstein & Phillips, 1613.
Talcott, 2239.
Cocking, 2295.
Gedge (*Gaffie & Jouan, jun.,*) 2503.
MacCarthy, 2550.
Cooley, 3054.
Vickers, 3371.

**Lenses:**
Holmes, 447.
Robertson, 1528.
Willson, 1772.
Brough & Fletcher, jun., 1777.
Johnson (*Derogy*), 1852.
Grubb, 1968.
Holmes, 2184.

**Let-off motion in looms:**
Ormerod, 333.
Armistead, Tunstill & Bannister, 439.
Dodgeon & Baldwin, 2307.
Hattersley & Smith, 3030.
Reed, 3220.

**Letter boxes and plates:**
Campbell, 763.
Brook, 963.

**Letter scales and balances:**
Ragg, 2052.
Loughton, 2741.

**Lettering.** *See* "Printing."

**Letters and numerals:**
Brock, 59.
Mackie, 996.
Barrett & Wright, 1562.
Perry (*Verster*), 1685.

**Levelling.** *See* "Plumbing."

**Lever apparatus for moving carriages on railways.** *See* "Railways."

**Life boats; life boat stations:**
Roberts, 341.
Stoner, 731.

**Life boats, &c.**—*cont.*
Boyman, 944.
Campbell, 1534.
Campbell, 1678.
Astley, 2242.
Kilner, 2543.
Thompson, 3039.

**Life preservers; saving from drowning:**
Macintosh, 242.
Starr (*Wotton*), 296.
Stoner, 570.
Stoner, 731.
Brandon (*De Gonsalo & Grissi*), 1815.
Saunders, 2270.
Hay, 2855.
Birt, jun., & Birt, 3104.

**Lighthouses and beacons:**
Holmes, 674.
Wigham, 729.
Stoner, 731.
Douglass, 792.
Davis, 2595.
Douglass, 2686.
Leigh, 3411.

**Lighting, producing light.** *See* "Lamps."

**Lightning conductors:**
Varley, 131.
Varley, 1150.

**Lights for theatres, lighthouses, lightships, &c.:**
Samuel, 314.
Wigham, 729.
Douglass, 792.
Taylor, 1747.
Douglass, 2686.

**Lime and its compounds:**
Irvine, 23.
Kenyon & Swindells, 79.
Morfit, 987.
Townsend, 995.
Morfit, 997.
Clark (*Rice & Driggs*), 1009.
Irvine & Johnson, 1084.
Spence & Dunn, 1136.
Tanner 1147.
Prentice, 1215.
Menzies (*Lewis*), 1311.
Morfit, 1420.
Newlands, 1700.
Tanner, 1776.
Way, 1851.
Hargreaves & Robinson, 1854.
Dann (*Ahrens*), 2237.
Ball, 2609.
Scott, 2660.
Parnell, 2874.
Vassard, 2926.
Hughan, 3060.
Knight, 3261.
Riddell, 3303.

**Link-motion for steam-engines.** *See* "Steam-engines."

**Lips for cups, &c.** *See* "Moustache protectors."

**Liquid cargoes (transporting).** *See* "Carriages."

**Liquids for obtaining lights for smokers and others:**
Warrington (*Louis*), 3315.

**Liquors (ageing).** *See* "Ageing wines."

**Loading cargo.** *See* "Ships' cargoes."

**Lockets:**
Jacob, 158.
Swain, 669.
Haseler, 791.
Richards, Lawrence & Lingard, 935.
Morley, Ellis & Rollason, 1182.
Littlehales, 1995.
Jacob, 3111.
Selfe, 3389.
Stagg, 3513.

**Locks, latches and lock furniture:**
Pocock, 87.
Lawrence (*Akins*), 240.
Harvey & Walton, 265.
Clark (*Brown & Miles*), 1026.
Imray, 1160.
Ratcliff, 1221.
Tonkinson, 1281.
Broomhall, 1328.
Pugin & Ayres, 1408.
Mills (*Brooks*), 1440.
Hutchins, 1514.
Adam, 1540.
Farrel, 1761.
Gulliver, 1768.
Dempster (*Tison*), 1922.
King, 1925.
Verity & Verity, 2339.
Long, 2398.
Pinder, 2519.
Stoney, 2602.
Samels, 2955.
Haseltine (*Rowell & Duncan*), 3108.

**Locks for canals, &c.** *See* "Canals."

**Locomotive batteries.** *See* "Batteries."

**Locomotive engines.** *See* "Steam-engines."

**Looking glasses:**
Welch & Laight, 290.
Robinson, Robinson & Skinner, 1121.
Welch & Laight, 1287.
Livsey (*Florence Manufacturing Co.*), 1304.
Cuff, 2410.
Vivien & Vivien, 2823.
Mabson, 3495.

**Looms.** *See* "Weaving."

**Looped fabrics.** *See* "Knitting."

**Lotions and gargles.** *See* "Medicines."

**Lozenges:**
Newton (*Hessin*), 289.
Clark (*Tamin*), 2631.
Symons (*Dotch*), 2923.

**Lubricating sized yarn.** *See* "Oiling yarns."

## M.

**Madder dyeing.** *See* "Dyeing."

**Magazines or cartridge holders.** *See* "Cartridges."

**Magic lanterns:**
Wrench, 604.
Ross, jun., 2685.

**Magma and seak:**
Cochrane, Messrs., 389.
Fenton, 1897.
Mirfield & Scott, 2394.

**Magnesia and its salts:**
Kenyon & Swindells, 79.
Lorberg, 244.
Clark (*Rice & Driggs*), 1009.
Irvine & Johnson, 1084.
Dann (*Ahrens*), 2237.
Weldon, 2389.

**Magnetism.** *See* "Electricity."

**Mail bags and fastenings:**
Lawrence (*Akins*), 240.

**Malt:**
Spencer, 993.
Granger & Hyan, 1381.
Curtis, 2040.
Norton, 2571.
Jackson, 2603.
Stanley & Stanley, 3291.

**Manganese compounds:**
Rowan, 1067.
Valentin, 1337.

**Mangling:**
Scaife & Younger, 89.
Hirst, Messrs., 368.
Davis & Wilshaw, 1175.
Wilson, 1335.
Pridden, 3361.

**Mantel pieces:**
Galloway, 1628.
Neilson, 2463.

**Manure; treating sewage and mud:**
Irvine, 22.
Kenyon & Swindells, 79.
Sherwin & Sutton, 297.
Sloper & Washer, 329.
Baly (*Parish*), 351.
Durand, 460.
Dunkley, 876.
Dover, 804.
Rock, 876.
Morfit, 987.
Townsend, 995.
Morfit, 997.
Clark (*Rice & Driggs*), 1009.
Irvine & Johnson, 1084.
Spence & Dunn, 1136.
Tanner, 1147.
Vassard, 1211.
Prentice, 1215.
Fahlman, 1269.
Menzies (*Lewis*), 1311.
Morfit, 1420.
Granger & Hyan, 1445.
Videky (*Mayrargues*), 1469.
Tanner, 1489.
Spence & Dunn, 1589.
Newlands, 1700.
Gedge (*Lainé*), 1723.
Tanner, 1776.
Way, 1851.
Fenton, 1897.
Norton, 1938.
Taylor, 1969.
Knab, 2056.
Beckett & Cam, 2109.
Lupton, 2140.
Parry, 2233.
Scott, 2243.
Townsend, 2267.
Bright, 2274.
Haseltine (*Mitchell*), 2299.
Parry, 2481.
Banks & Walker, 2495.
Gibbs, 2539.
De Chastelain, 2567.
Norton, 2571.
Ball, 2609.
Pocock, jun., 2628.
Burrow, 2659.
Scott, 2660.
Milburn & Browning, 2696.
Rydill, 2754.
Pow, 2760.
Smith, 2784.
Spence, 2834.
Wilks, 2841.
Parnell, 2874.

**Manure, &c.—*cont.***
Clark (*Plasse*), 2879.
Danchell, 2903.
Vassard, 2926.
Garden & Abbott, 2975.
Smith, 2997.
Hughan, 3060.
Newton (*Messrs. Tessier*), 3115.
Norton, 3198.
Fahlmann, 3233.
Knight, 3261.
Amies, 3409.
Wanklyn, 3436.
Scott, 3515.
Tanner, 3518.

**Manure distributors.** *See* "Sowing seed."

**Maps and charts:**
Stanford & Price, 61.
Hatton & Hatton, 2279.
Hatton & Hatton, 2530.

**Marble.** *See* "Stone."

**Marbles used in chemical operations:**
Norman, 3029.

**Marine-engines.** *See* "Steam-engines."

**Mariners' compasses.** *See* "Compasses."

**Marking tickets, cards, invoices, &c.** *See* "Dating."

**Marking warps or yarns:**
Abbott, 2957.

**Marquees.** *See* "Tents."

**Mashing and mixing.** *See* "Mixing."

**Mastics.** *See* "Cement."

**Masts for ships.** *See* "Shipbuilding."

**Matches, fuses and cigar lights:**
Avery, 101.
Long, 134.
Mills, 224.
Samuel, 314.
Western, 616.
Crosnier, 769.
Dee, 863.
Riddell, 923.
Brown & Jones, 1059.
Loomes, 1198.
Bertram (*Bertram*), 1303.
Avery, 1322.
Haseltine (*Young*), 2288.
Rollason & Brough, 2524.
Rollason & Brough, 2820.
Bell, 3083.
Morris & Davis, 3123.
Perry, 3144.
Boston, 3327.
Henderson (*Courtchoux*), 3520.

**Mats.** *See* "Rugs."

**Mattresses and beds.** *See* "Upholstery."

**Meal.** *See* "Grinding corn."

**Measuring and indicating length and size of yarns:**
McGlashan, 1887.

**Measuring and indicating speed of currents of water:**
Fletcher, 423.

**Measuring and indicating speed of ships:**
Fletcher, 423.
Vojacek, 3334.

**Measuring fluids, liquids or semi-liquids for filling bottles, &c.:**
Connolly (*Gregory*), 871.
Rowley & Humphrey, 893.
Eagles, 926.
Sweetser, 1064.
Jones, 3186.
Evered, 3245.

**Measuring folded or rolled fabrics:**
Morgan, 590.

**Measuring quantity of charcoal discharged from kilns:**
Duncan & Robertson, 3197.

**Meat biscuits:**
Henley, 1233.

**Meat (preserving).** *See* "Preserving food."

**Meat waggons:**
Ash, 1223.
Baggs, 1806.

**Medical bands and flannels:**
Kinnear & Martin, 1282.
Pulvermacher, 1460.
Cocking, 2353.

**Medical treatment of animals:**
Reid, 138.
Bentley, 1669.
Brewer (*Edard & Bazault*), 1947.
Curtis, 2321.
Jones, 2620.
Atkinson, 3195.

**Medical treatment of man:**
Liston, 487.
Kinnear & Martin, 1282.
Pulvermacher, 1460.
Harrison, 1635.
Sproul, 1638.
Brewer (*Edard & Bazault*), 1947.
Parnacott, 2070.
Lake (*Barret*), 2240.
Cocking, 2353.
Street, 2376.
Gillingham, 2431.
Huch, 2459.
Gedge (*Pavel*), 2490.
Jones, 2620.
Lumb, 2630.
Clark (*Ménoteal-Belcour*), 2679.
Henry & Henry, 2751.
Gurrin, 2766.
Williams, 2787.
Seyd (*Brandreth*), 2938.
Garrett, 3235.
Cocking, 3283.
Kilpatrick & Cooke, 3394.
Davies, 3469.

**Medicines:**
Lorberg, 244.
Purvis, 734.
Westerton, 861.
Clark (*Baker*), 1846.
Curtis, 2040.
Dann (*Ahrens*), 2237.
Leadbetter, 2290.
Clark (*Tumin*), 2631.
Crookes, 2763.
Symons (*Dotch*), 2923.
Langford, 2928.
King (*Lauder*), 3028.
Tilden, 3085.

**Medicines (packing):**
Gardner (*Mauger*), 2486.

**Melting snow:**
Clarke, 116.

**Menstruation belts.** *See* "Belts.

**Mensural observations:**
Innes, 817.
Stephens, 1993.

**Metal detectors:**
Boyd (*Meulen*), 263.

**Metallic salts:**
Hughes (*Fees*), 33.
Kenyon & Swindells, 79.
Sonstadt, 105.
Lorberg, 244.
Königs, 853.
Claudet, 904.
Doble, 1077.
Hargreaves & Robinson, 1923.
Madge, 1932.
Dann (*Ahrens*), 2237.
Henry (*De Vaurèal*), 2413.
Claudet, 2516.
Spence, 2632.

**Metals (annealing and soldering):**
Jobson, 453.
Paget, 510.
Mather, 702.
Southwood, 998.
Tildesley, 1234.
Southan, 1377.
Jervis, 1721.
Tildesley, 3284.
Lake (*Mason*), 3464.

**Metals (boring).** *See* "Boring."

**Metals (casting and moulding):**
Hall, 41.
Blackwell & Bradshaw, 55.
Haseltine (*Holley*), 69.
Siemens, 292.
Blanford, 374.
Butler, 497.
Brown & Lockwood, 508.
Haseltine (*Leggo*), 518.
Wheeldon, 555.
Wilkes, 586.
Kesterton, 707.
Binnie, 834.
Welch, 840.
Johnson (*Nes*), 866.
Thomson & Macredie, 886.
Harlow, 1083.
Clark (*Demarest & Mott*), 1105.
Smith & Smith, 1538.
Wilson (*Berdan*), 1425.
Hyatt, 1462.
Galloway, 1628.
Shephard, 1689.
Jervis, 1721.
Sellars, 1817.
Sutcliffe & Sutcliffe, 1844.
Stott, 1881.
Duley & Marriott, 1979.
Bousfield (*Goddard & Adams*), 2064.
Johnson (*Lobdell*), 2348.
Lake (*Eaton*), 2403.
Healey, 2415.
Smith, jun., 2455.
Ireland & Ireland, jun. (*Pink*), 2548.
Edwards (*Tarr*), 2582.
Ashford, 2771.
Gordon, 3070.
Gedge (*Dérégnaucourt*), 3122.
Touaillon (*André & Fleury*), 3199.

**Metals (coating).** *See* "Coating metals."

**Metals (forging, hammering, welding, bending and shaping):**
Willoughby, Messrs., 16.
Jeavons, 17.
Lismann, 66.
Nevill, 273.
Adamson, 344.
Hanson, 402.
Seel & Shaw, 417.
Wilson, 418.
Betteley, 563.
Wilkes, 586.
Siecinoski (*Frisac*), 697.

**Metals, &c.—*cont.***
Smith, 808.
Munro, 822.
Underwood & Thomson, 922.
Rigby, 1098.
Barber (*Forbes*), 1212.
Von Bolzano, 1349.
McKay & Macgeorge, 1371.
Clark (*Smith, Carver & McCune*), 1441.
Sholl, 1495.
Robertson, 1528.
Birch, 1706.
Brown, 1838.
Mills (*Lewis*), 1877.
Mills (*Lewis*), 1882.
Dormoy, 1967.
Marsden, 1981.
Hyatt, 2119.
Thompson, 2278.
Bell, 2297.
Newton (*Mackenzie*), 2346.
Lake (*Eaton*), 2403.
Davies & Leyland, 2622.
Stevenson, 2654.
Darlington, 2657.
Lake (*Roots & Roots*), 2691.
Flower, 2694.
Clark (*Wickes*), 2700.
Garnier, 2864.
Lake (*Bell*), 3052.
Haseltine (*Gladwin & Hotchkiss*), 3176.
Bentall, 3307.
Tweddell, 3358.
Lake (*Mason*), 3464.

**Metals (ornamenting):**
Rhodes, 106.
De Lobstein, 2628.
Clark (*Morse*), 2934.

**Metals (rolling):**
Chapman, 28.
Lismann, 66.
Nicholas, 233.
Johnson (*Wheeler*), 388.
Smith, 427.
Wheeldon, 555.
Radford, 560.
Towle (*Poole*), 877.
Clark, 953.
Wise (*Kastner*), 1095.
Edwards, 1196.
Whittaker, 1296.
Dorrell & Rudge, 1431.
English & Wilson, 1465.
Fisken, 1614.
Birch, 1706.
Marsden, 1981.
Hyatt, 2116.
Hyatt, 2119.
Laybourne, 2351.
Lake (*Eaton*), 2403.
Huggins, 2542.
Ireland & Ireland, jun. (*Pink*), 2548.
Ball, 2646.
Stevenson, 2654.
Allan & Gregory, 2693.
Homan, 2731.
Garnier, 2864.
Fairbairn, 2979.
Davage, 3014.
Perry, 3066.
Hughes, 3129.
Brown, 3275.
Lake (*Mason*), 3464.
Hughes (*Kellogg*), 3473.
Davis, 3475.
Kelley, 3498.

**Metals (smelting, reducing and refining); treating ores; obtaining iron:**
Willoughby, Messrs., 16.
Larkin & White, 23.
Furlonge & Churchill, 46.
Robinson, 149.
Green, 158.
Ridley, 160.
Smith, 205.
Atkey, 259.
Crispin, 283.
Becks, 286.

**Metals, &c.—*cont.***
Siemens, 292.
Goodman, 358.
Bessemer, 386.
Mines & Evans, 387.
Johnson (*Wheeler*), 388.
Barclay, 404.
Bromilow, 422.
Collom, 440.
Gedge (*Trottier*), 446.
Haseltine (*Baloh & Nelson*), 477.
Leffler, 598.
Gibb & Gelstharp, 624.
Addie, 628.
Blair, 635.
Corbett & Griffiths, 650.
Barclay, 673.
Newten (*Henderson*), 688.
Wilson, 717.
Anderson, 718.
Head, 754.
Rowan, 785.
Munro, 822.
Wright, 827.
Newton (*Collom*), 833.
Königs, 853.
Johnson (*Nes*), 866.
Ott, 890.
Claudet, 904.
Tregay, 905.
Newton (*Spencer*), 907.
Borlase, 928.
Southwood, 998.
Thomas, 1024.
Rowan, 1066.
Doble, 1077.
Hunter, 1085.
Borgnet, 1092.
Lake (*Hooper*), 1096.
Claudet, 1101.
Spence, 1135.
Donald & Atkey, 1302.
Königs, 1305.
Von Bolzano, 1349.
Wigg, 1366.
Johnson (*Hill & Thumm*), 1450.
Agnellet, 1499.
Larkin, Leighton & White, 1518.
Crockford, 1531.
Hunter, 1559.
Galloway, 1628.
Königs & Henderson, 1642.
Richardson, Messrs., & Spencer, 1788.
Spence (*Perret, Bros., & Olivier*), 1807.
Eaton, 1841.
Hargreaves & Robinson, 1854.
Wérotte, 1902.
Hunt, 1918.
Hargreaves & Robinson, 1923.
Siemens, 1959.
Lake (*Chisholm*), 1965.
Dormoy, 1967.
Thomson, 1982.
Crockford, 2024.
Goldsmith & Dilkes, 2063.
Barclay, 2076.
Johnson (*De Langlade*), 2081.
Ferrie, 2088.
Goodman, 2114.
Anderson, 2134.
Anderson, 2216.
Zenger, 2247.
Prosser, 2249.
Leffler, 2317.
Newton (*Mackenzie*), 2346.
Rowan, 2384.
Lake (*Eaton*), 2403.
Henry (*De Vaurèal*), 2413.
Healey, 2415.
Bower, 2422.
Wilson & Wood, 2478.
Claudet, 2516.
Parkes, 2517.
Johnson (*Sellers*), 2612.
Sidebottom, 2636.
Hartmann, 2678.
Clark (*Wickes*), 2700.
Abel (*Durfee*), 2740.
Marshall, 2790.
Howson & Thomas, 2881.
Green, 2892.
Hughan, 3060.
Siemens, 3077.

**Metals, &c.**—*cont.*
Thomson, 3127.
Jones & Jones, 3134.
Jones, 3174.
Johnson (*Sellers*), 3196.
Bell, 3204.
Wilson, 3205.
Newton (*Hausseur*), 3228.
Lake (*La Bréche-Viger*), 3246.
Macintire, 3247.
Larkin & White, 3311.
Pinkus, 3359.
Russell & Russell, 3364.
Warner, 3386.
Lake (*Mason*), 3464.
Anderson, 3493.
Binks, 3500.
Wiborgh, 3505.

**Meters for gas and fluids:**
Brotherhood & Kittoe, 143.
Newton (*De Navarro*), 184.
Tatters, 412.
Pocock, 426.
Telling & Johnson, 469.
Guthrie & Stevenson, 531.
Common, 543.
Eyton, 748.
Newton (*De Navarro*), 869.
Fleury, 1008.
Cox, 1053.
Newton (*De Navarro*), 1237.
Grindrod, 1293.
Tylor, 1411.
Sweeney, 1453.
Hughes (*Sigl*), 1641.
Lake (*Kisne*), 1713.
Croll, 2062.
Newton (*Godfrey*), 2393.
Barlow, 2401.
Westinghouse, jun., 2436.
Smith, 2507.
Muschamp, 2512.
Johnson (*Clausolles*), 2613.
Sterne (*Almqvist*), 2714.
Hughes (*Curtis*), 2815.
Hunt (*Copeland*), 3045.
Tylor, 3339.
Bray, 3367.
Brandon (*Fogerty*), 3483.
Wightman, 3487.

**Mica (calcining):**
Verity, 2511.

**Microscopes:**
Holmes, 447.
Holmes, 2184.

**Milanese or floss cord:**
Dew, 337.

**Milk; milking; skimming milk; milk cans:**
Brand, 20.
Rook, 876.
Keevil, 1126.
Fox, 1435.
Wanklyn & Eassie, 1801.
Widgery, 3149.

**Milling.** *See* "Fulling."

**Millstones.** *See* "Stone."

**Mincing meat, vegetables, &c.**
Drouyer, 1097.

**Mineral searchers.** *See* "Boring, probing, &c."

**Mining, quarrying, getting coal and other minerals:**
Williams, 133.
Cochrane (*Guibal*), 173.
Tate, 310.
Ball, 445.
Macdermott & Williams, 468.
Wilkes, 586.
Murphy, 646.
Broadbent (*Schäffer & Budenberg*), 681.
Welch, 776.

**Mining, &c.**—*cont.*
Sanders, 837.
Brydon & Kendall, 884.
Thomas, 915.
Appleby, 1072.
Baker (*Bell & Gisborne*), 1218.
Law & Bennison, 1312.
Muschamp, 1336.
Tylor, 1411.
Hickman, 1437.
Plimsoll, 1448.
Rothery & Rothery, 1471.
Clarke & Hughes, 1481.
Walker, 1571.
Briggs, 1584.
Cowper, 1612.
Hogg, 1742.
Irvine, 1896.
Brewer (*Edard & Bazault*), 1947.
Klerity, 2032.
James, 2045.
Guinotte, 2094.
Jones & Gray, 2103.
Klerity, 2335.
Lees, 2565.
Gowans, 2644.
Scott, 2647.
Darlington, 2657.
Yates, 2677.
Holmes (*Emerson*), 2706.
Watteeu (*De Terré & De Mercader*), 2715.
Dunn, 2748.
Welsh, Hope & Stevenson, 2761.
Briggs, 2971.
Okes, 2980.
Watteeu (*François & Dubois*), 3004.
Plimsoll, 3057.
Eley, 3181.
Haseltine (*Shelley & Bullock*), 3270.
Tylor, 3339.
Scott, 3428.
Alexander, 3438.

**Mitrailleuses.** *See* "Fire-arms."

**Mitres (cutting).** *See* "Cutting wood."

**Mixing, mashing and stirring:**
Ripley, 781.
Balmain (*Menzies*), 783.
Oldroyd, Oldroyd, jun., & Woodcock, 1229.
Lake (*Berrett*), 1365.
Glover & Goodman, 1385.
Johnson (*Hill & Thumm*), 1450.
Galloway, 1628.
Schlesinger (*Dixon*), 1728.
Edwards, 1802.
Torrance & Torrance, 1833.
Hunt (*Goodenough, jun.*), 1935.
Lupton, 2140.
Prosser, 2249.
Bresson, 2407.
Gillespie, 2429.
Murdoch, 2445.
Banks & Walker, 2495.
Long, 2563.
Williams, 2959.
Wylam, 3093.
Russell & Russell, 3364.
McCready, 3365.
Hellier, 3453.

**Modelling:**
Muratori, 2521.

**Money tills:**
Clark (*Brown & Miles*), 1026.

**Mooring; mooring chains:**
Stoner, 731.
Liardet, 2013.
Kilner, 2543.
Davis, 2595.

**Mordanting cloth.** *See* "Dyeing."

**Mortar.** *See* "Cement."

**Mortars.** *See* "Fire-arms."

**Mosaic work.** *See* "Inlaying."

**Motive-power (air and gas).** *See* "Air-engines."

**Motive-power (animal):**
Mabson, 3495.

**Motive-power (electro and electro-magnetic):**
Lake (*Jones, Smith & Weaver*), 294.
Newton (*Paine & Frost*), 1361.
Lake (*Utley & Ross*), 2238.
Lake (*Gassett*), 2439.
Newton (*Bastet & Seligman*), 2759.

**Motive-power from carbonic acid or fluids and bodies having similar properties:**
Geisenberger & Cherpit, 3056.

**Motive-power from incompressible liquids:**
Smith (*Pinet*), 2054.

**Motive-power from intermittent flames:**
Brown, 2338.

**Motive-power from mixed fluids and gases:**
Westinghouse, jun., 2592.

**Motive-power from rise and fall of tides.** *See* "Waterwheels."

**Motive-power from the force of unbalanced atmospheric pressure:**
Wilson, 3067.

**Motive-power from the oscillation of a vessel at sea:**
Bridson, 3190.

**Motive-power from the weight of passengers, merchandise, &c.:**
Lepage, 3216.

**Motive-power (gunpowder).** *See* "Air-engines."

**Motive-power (mechanical):**
Tamin, 989.
Lüdeke, 1167.
Thompson, 1270.
Jones, jun., & Bell, 1477.
Rogers, 1921.
Galloway, 1958.
Lowman, 2508.
Smith, 2863.
Guzman, 2866.
Thompson, 3039.
Berlet, 3336.

**Motive-power (oil):**
Tommasi, 175.

**Motive-power (steam).** *See* "Steam-engines."

**Motive-power (water).** *See* "Waterwheels."

**Moulding fuel:**
Chambers & Elton, 302.
Lodge, 632.
Grant, 1290.
Lodge, 2717.
Williams, 2959.
Box (*Surowiez*), 3406.
Cochrane, 3482.

**Moulding sugar.** *See* "Sugar."

**Mouldings and architectural ornaments:**
Lismann, 66.
Snowdon, 97.

**Mouldings, &c.—*cont.***
Smith, 506.
Bird, 1193.
Cunningham, 2320.
Muratori, 2521.
Davey, 2553.

**Mouldings used in joinery:**
Shute, 331.
Snowdon, 744.
Houbé, Guinet & Lemarchand, 1594.

**Moulds (electrotype):**
Haseltine (*Leggo*), 518.
Newton (*Knight*), 1103.

**Moustache protectors:**
Brock, 1771.
Williams, 2649.

**Mouth protectors.** *See* "Respirators."

**Mowing machines.** *See* "Reaping."

**Mud (treating).** *See* "Manure."

**Muffles.** *See* "Metals (smelting)."

**Mushrooms (preserving):**
Gedge (*Quilaverth*), 2698.

**Music binders:**
Lake (*Dyer*), 1520.

**Music stands:**
Philip, jun., 917.

**Music (teaching).** *See* "Teaching."

**Music (turning over leaves of):**
O'Brien, 1816.

**Musical instruments:**
Higham, 26.
Tongue, 236.
Basquit, 326.
Benson (*Gardner & Turrell*), 332.
Lambert, 399.
Mackenzie, 696.
Courtice & Webb, 819.
Hund & Hund, 855.
Newton (*Wildman*), 1002.
Zawadski, 1069.
Grainger, 1099.
Rogers, Monington & Weston, 1106.
Lake (*McDaniel*), 1355.
Chew, 1455.
Lake (*Scribner*), 1491.
Liebich & Paterson, 1633.
Hughes (*Sargent*), 1640.
Benson (*Burdett*), 1658.
Ducommun, 1766.
Stead, 1849.
Eastman, 1870.
Norminton, 1905.
Gannt, 2129.
Holt, 2164.
Stead, 2392.
Molyneux, jun., 2477.
Jackson, 2604.
Camp, 2667.
Gilbee (*Procopé*), 2858.
Scantlebury, 2905.
Brandon (*Fogelberg*), 3086.
Bromage, 3136.
Hunt (*Amann*), 3158.
Grainger, 3184.
Stroh, 3293.
Gouverneur, 3502.

**Mustard pots:**
Wright, 1403.
Clark (*Decoudun*), 2791.
Barns, 2986.

## N.

**Nail bags:**
Walker, 2621.

**Nail pullers:**
Lake (*Garrick*), 2699.

**Nails, spikes and rivets; nailing:**
Burney, 197.
Sharrocks, 288.
Clark (*Mussinan*), 747.
Woore, 932.
Townsend (*Godde*), 1079.
Seekings, 1256.
Dean & Horton, 1472.
Pechenart & Miette, 1984.
Gaunt, 2251.
Priqueler, 2255.
Bell, 2297.
Lake (*Bell*), 3052.
Taylor, 3191.
Kelley, 3498.

**Necklets; necklet pendants:**
Morley, Ellis & Rollason, 1182.
Allanson & Pearson, 2078.
Jacob, 3111.

**Neck-ties:**
Hart, 930.
Nash, 1419.
McCalla, 2769.
Dick, 2779.
Gibson, 2961.

**Needle threaders:**
Clements, 1933.

**Needles and cases:**
Avery, 101.
Baylis, 106.
Jacob, 153.
Welch & Laight, 290.
Thomas, jun., & Guise, 538.
Christoffers, 878.
Mills (*Goodyear, jun.*), 937.
Wormald & Hall, 1090.
Welch & Laight, 1287.
Avery, 1322.
Tubbs, 1463.
Avery, 2099.
Morrall, 2193.
Anderson, 3208.
Yeomans, 3471.

**Nets and netting:**
Unsworth, 1088.
Hugon (*Jubelin*), 1344.
Jones, 3165.

**Night signals.** *See* "Signals."

**Nightlights:**
Field, 122.
Greaves, 1698.
White (*Bourie & Ujhely*), 2364.

**Nippers.** *See* "Pincers."

**Nitrates and nitrites:**
Smith (*Du Motay*), 491.
Hughan, 3060.

**Nitre.** *See* "Saltpetre."

**Nitro-cellulose.** *See* "Gunpowder."

**Nitrogen:**
Hughan, 3060.

**Nitro-glycerine:**
Lake (*Berrett*), 1365.

**Noxious gases and vapours (arresting and preventing):**
Ritchie, 185.
Sherwin & Sutton, 297.

**Noxious gases, &c.—*cont.***
McConville, 364.
Crichley, 478.
Cochrane, 520.
Wilson, 717.
Dewar, 778.
Dover, 804.
Westerton, 861.
Rock, 876.
Jackson, 972.
Spence, 1036.
Jennings, 1341.
Hunt (*Gordon*), 1348.
Granger & Hyan, 1445.
Wilson, 1749.
Baker, 1754.
Galloway, 1757.
Collins, 1840.
Sutcliffe & Sutcliffe, 1844.
Brown, 1859.
Taylor, 1969.
Lupton, 2140.
Williams, 2186.
Amos, 2245.
De La Peyrouse, 2260.
Bright, 2274.
Newton (*Pike*), 2356.
Westo & Pinder, 2428.
Naylor, 2443.
Parry, 2481.
Banks & Walker, 2495.
De Chastelain, 2567.
Wilson, 2578.
Lake (*Potter*), 2599.
Burrow, 2659.
Milburn & Browning, 2696.
Rydill, 2754.
Welsh, Hope, & Stevenson, 2761.
Tayler, 2778.
Wilks, 2841.
Clark (*Plasse*), 2879.
Garden & Abbott, 2975.
Holmes, 3015.
Gent, 3023.
Fahlmann, 3233.
Gunn, 3248.
Cunnington, 3380.
Tayler, 3388.
Anderson, 3455.
Pawson, 3460.
Temple, 3496.

**Nozzles for sprinkling fluids.** *See* "Spray producers."

**Numbering machines:**
Millar, 371.
Gooding, 978.
Barrett & Wright, 3374.
Hammond (*Jullien*), 3392.

**Numerals.** *See* "Letters."

**Nursing apparatus:**
Lake (*Wittram*), 2138.

**Nut-crackers:**
Lake (*Garrick*), 2699.

**Nuts (disintegrating).** *See* "Disintegrators."

**Nuts and washers:**
Smith, 808.
Woore, 932.
Seekings, 1256.
Whittaker, 1296.
Griffin (*Wood*), 1324.
Lake (*Hidden*), 1653.
Revell & Collin, 1992.
Blakemore, Sherring & Horstman, 2379.
Davies & Leyland, 2632.
Tagell, 2681.
English, 3211.
Bentall, 3307.
Lafferty & Lafferty, 3323.

## O.


**Oakum.** *See* "Ropes."

**Oars and sculls:**
Gurrin, 1091.
Gurrin, 2766.

**Ochre.** *See* "Paints."

**Oiled silk (substitutes for):**
Parnacott, 2070.

**Oiling fibres:**
Barraclough, 495.
Fleming, Turnbull, Salvesen, Irvine & Maclagan, 1451.
Burton, 1487.
Fleming, Maclagan & Irvine, 2196.
Wilkinson, 3000.

**Oiling or lubricating; materials for oiling:**
Bouch, 64.
Hale, 73.
White, 129.
Morand, 325.
Knowles, 343.
Newton (*Schettler*), 610.
Cannon, 619.
Pollock, 623.
Booth (*Draper & Draper*), 737.
Mitchel, 758.
Marchisio & Stevens, 775.
Newton (*Seibert*), 796.
Neuhaus (*Beather*), 806.
Brigham & Brigham, 815.
Lake (*Cameron*), 838.
Johnson & Jones, 879.
Johnson (*Fish*), 897.
Moore (*Moore*), 901.
Chevolot, 983.
Lake (*Smith*), 1017.
Toepler, 1052.
Clayton, 1129.
Truscott, 1172.
Shaw & Boardman, 1283.
Reynolds & Mays, 1342.
Johnson, 1378.
Wilson (*Berdan*), 1425.
Fleming, Turnbull, Salvesen, Irvine & Maclagan, 1451.
Noble & Grout, 1468.
Burton, 1487.
Munson (*Clark*), 1525.
Lilley, 1710.
Lake (*Salamon*), 1715.
Smart, 1730.
Taylor, jun., & Prest, 1759.
Munson (*Clark*), 1760.
Townsend, 1843.
Vaughan, 1876.
Mills (*Lewis*), 1882.
Wray, 1884.
De Bergue & De Bergue, 1914.
Revell & Collin, 1992.
Pearson, 2115.
Giles, 2137.
Fleming, Maclagan & Irvine, 2196.
Watson & Andrews, 2223.
De La Peyrouse, 2260.
Baldwin, 2327.
Furness, 2457.
Hughes (*Harper*), 2494.
Haines, 2515.
Ellis, 2626.
Davis, 2765.
Lake (*Wiegand*), 2798.
Johnson (*Messrs. Pilon*), 2803.
Smith (*Lengelés & Bouttier*), 2867.
Alexander, 2916.
Langshaw, 2919.
Turnpenny, Atkinson & Davy, 2996.
Arnold & Barraclough, 3012.
Palmer, 3017.
Hattersley & Smith, 3030.
Crane & Moir, 3055.
Smith (*Messrs. Tiranoff & Kousakoff*), 3164.
Lafferty & Lafferty, 3322.
Newton (*Otis & Otis*), 3430.

**Oiling or lubricating, &c.—*cont.***
Leonardt (*Klosak*), 3470.
McEvoy (*Painter*), 3527.

**Oiling or lubricating sized yarn:**
Aitken, 1529.

**Oils (animal):**
Douglas, 507.
Marchisio & Stevens, 775.
Fordred, 858.
Stapfer & Dean, 942.
Dawlings (*Brough & Gilson*), 1406.
Burton, 1487.
Gwynne, 1675.
Smith (*Du Motay*), 1725.
Collins, 1840.
Fenton, 1897.
Knab, 2056.
Smart, 2143.
Johnson (*Adamson*), 2168.
De La Peyrouse, 2260.
Mirfield & Scott, 2394.
Stapfer, 2591.
Smith, 2784.
Fortoul, 3249.

**Oils from seeds; vegetable oils:**
Nutt & Selby, 71.
Dahne & Hughes, 81.
Church, 305.
Thomas, 354.
Douglas, 507.
Warren, 537.
De Negri & Craddock, 557.
Bolton, 678.
Marchisio & Stevens, 775.
Mills (*Hutchinson*), 1044.
Laycock, 1310.
Olpherts, 1369.
Clark (*Dervieux*), 1396.
Dawlings (*Brough & Gilson*), 1406.
Burton, 1487.
Olpherts, 1539.
Marchisio, 1579.
Sinclair, 1666.
Gwynne, 1675.
Parnacott, 2057.
De La Peyrouse, 2260.
Ford, 2311.
Stapfer, 2591.
Heyl, 2786.
Marshall, 3119.
Molchin (*Schneeweiss*), 3529.

**Oils of tar, mineral oils, hydrocarbons:**
Funck (*Meissner, Ackermann & Co.*), 237.
Church, 305.
Douglas, 507.
Marchisio & Stevens, 775.
Fordred, 858.
Stapfer & Dean, 942.
Normandy, 1042.
Dawlings (*Brough & Gilson*), 1406.
Burton, 1487.
Gwynne, 1675.
Townsend, 1843.
Scott, 2086.
Young, 2123.
Moffat & McLaren, 2200.
Stapfer, 2591.
Dunn, 2748.
Clark (*Pratt*), 2960.
Crane & McGrath, 2989.
Johnson (*Jordery & Paschkoff*), 3043.
Emmens, 3130.
Hodges, 3241.
Fenner & Versmann, 3486.
Molchin (*Schneeweiss*), 3529.

**Oils or liquids (composition):**
Molchin (*Schneeweiss*), 3529.

**Oily coatings for walls, ceilings, &c.** *See* "Decorating walls."

**Ointments:**
Symons (*Dotch*), 2923.

**Oleine:**
Fortoul, 3249.

**Olive oil.** *See* "Oils."

**Omnibuses.** *See* "Carriages."

**Opening tins and cases:**
Yeates, 112.
Bernard, 2637.
Lake (*Garrick*), 2699.
Widgery, 3149.

**Optical illusions:**
Ross, jun., 2685.

**Optical instruments:**
Holmes, 447.
Innes, 817.
Hoskold & Winspear, 1240.
Holmes, 2184.

**Ordnance.** *See* "Fire-arms."

**Ores of metals (treating).** *See* "Metals (smelting)."

**Outer garments for gentlemen's wear.** *See* "Wearing-apparel."

**Ovens:**
Jobson, 453.
Paget, 510.
Lake (*Curtis & Graham*), 842.
Tildesley, 1224.
Jackson, 1308.
Granger & Hyan, 1381.
Chadwick, 1479.
Kent, 1565.
Eaton, 1841.
Mills (*Lewis*), 1877.
Kaiser, 2068.
Gent, 3023.
Johnson, 3032.
Johnson (*Muller*), 3289.

**Over-skirts.** *See* "Dresses."

**Overwinding in mines (preventing).** *See* "Hoists."

**Oxidation and incrustation (preventing and removing):**
Darwin, 90.
Harris, 123.
Walker, 170.
Porter & Lane, 201.
Phalp, 301.
Lockwood, 376.
Paget, 510.
Cochrane, 520.
Busch, 746.
Field, 870.
Lake (*Woodson*), 910.
Woore, 932.
Rigby, 1098.
Harris, 1155.
Oram, 1183.
Crease, 1186.
Lake (*Perkins*), 1323.
Vansteenkiste & Barbe, 1401.
Wilde, 1511.
Griffiths, 1522.
Long, 1552.
Campbell, 1678.
Schlesinger (*Dixon*), 1723.
Mallock, 1792.
Whitwell, 1797.
Zipser, 1868.
Mirchin, 1952.
Marsden, 1981.
Jones, 2097.
Clark (*Dubois*), 2222.
Baldwin, 2327.
Newton (*Godfrey*), 2393.
Wood (*Wood*), 2421.
Chapman, 2440.
Clark, 2688.
Webster, 2810.
Perkins, 2819.
Vivien & Vivien, 2833.
Chaudet, 2871.

**Oxidation, &c.—*cont.***
Mitchell & Mitchell, 3071.
Touaillon (*Vigier*), 3328.
Jenkins, 3413.
Hughes (*Dunham*), 3476.

**Oxides:**
Kenyon & Swindells, 79.
Lorberg, 244.
Smith (*Du Motay*), 491.
Rowan, 785.
Königs, 853.
Claudet, 904.
Spence, 1036.
Rowan, 1067.
Königs, 1305.
Clark (*Grawitz*), 1374.
Larkin, Leighton & White, 1518.
Crockford, 1531.
Valentin, 1837.
Hargreaves & Robinson, 1923.
Weldon, 2006.
Crockford, 2024.
Anderson, 2134.
Anderson, 2216.
Scott, 2243.
Rowan, 2384.
Weldon, 2389.
Henry (*De Vaurèal*), 2413.
Claudet, 2516.
Spence, 2832.
King (*Lauder*), 3028.
Eveleigh, 3348.
Anderson, 3493.

**Oxidizing:**
Clark (*Aubertin*), 1181.
Townsend, 1843.
Hargreaves & Robinson, 1923.

**Oxygen:**
Garrett, 3235.

**Ozokerite:**
White (*Beurle & Ujhely*), 2364.

**Ozone:**
Rumine, 1363.
Angell, 2878.
Garrett, 3235.

## P.

**Packed goods (ventilating and preserving):**
Joannides, 1832.
Joannides & Adutt, 2683.

**Packing-cases.** *See* "Boxes."

**Packing for steam-engines, pumps, valves, &c.:**
Horrocks (*Horrocks*), 117.
Clark (*Ellis*), 261.
Graddon, 383.
Scaife & Younger, 502.
Haseltine (*Perkins, Moulton & Sawyer*), 528.
Sutherland, 640.
Feldtmann (*Gehrckens*), 692.
Barnes, jun., 704.
Lake (*Cameron*), 838.
Johnson (*Fish*), 897.
Robson, 900.
Day (*Campbell & Clark*), 1259.
Lake (*Brandt, Lehr, Fisher & Brecht*), 1327.
Newton (*Allen, Kimball, Mallory & Butterfield*), 1370.
Lindsay, 1436.
Turner, Messrs., 1556.
Smart, 1730.
Henderson, 1787.
Perkins, 1822.
Warner & Brooke, 1919.
Giffard, 2011.

**Packing, &c.—*cont.***
Watkin, 2029.
Campbell, 2234.
Hughes (*Windhausen*), 2355.
Goulding, 2381.
Fletcher, 2383.
Lake (*Brown*), 2417.
Haines, 2515.
Brady, Dresser & Harris (*Washburn*), 2788.
Hughes (*Curtis*), 2815.
Perkins, 2819.
Harris, 2846.
Lake (*Cruickshank & Smith*), 2911.
Alexander, 2916.
Watteeu (*Duterne*), 3168.
Gwynne & Beale, 3449.
Leonardt (*Klosak*), 3470.

**Packing or making bales.** *See* "Presses."

**Paddle wheels.** *See* "Propelling ships."

**Padlocks.** *See* "Locks."

**Pails:**
Naylor, 2443.
Clark (*D'Argy*), 3109.

**Paints; painting:**
Kenyon & Swindells, 79.
Lake (*Kemmer*), 234.
Lorberg, 244.
Rowan, 324.
Eveleigh, 443.
Berwick, 597.
Hennis, 703.
Marchisio & Stevens, 775.
Königs, 853.
Claudet, 904.
Rowan, 1067.
Crease, 1186.
Wright (*Minor & Britton*), 1208.
Clark (*Grawitz*), 1374.
Robson & Berwick, 1901.
Clark (*Dubois*), 2222.
Dann (*Ahrens*), 2237.
Johnson (*Smart*), 2282.
Ford, 2311.
Zengeler, 2325.
Rowan, 2384.
Wood (*Wood*), 2421.
Chapman, 2440.
Claudet, 2516.
Webster, 2810.
Chaudet, 2871.
Raoul, Comte de Favières, 3223.
Eveleigh, 3348.
Lake (*Webster & Hall*), 3349.

**Panels:**
Tysall, 306.
Snowdon, 742.
Neilson, 2483.
Davey, 2553.

**Panoramic apparatus for teaching, reading, &c.** *See* "Teaching."

**Paper, papier mâché, paper pulp (making):**
Richardson, 18.
Smith, 76.
Roeckner, 119.
Seitz, 145.
Brown & Bowron, 162.
Broad, 225.
Gibbs, 256.
Stewart & Wallace, 271.
Annandale, jun., 279.
Smith & Granville, 365.
Smith & Granville, 372.
Duff, 519.
Annandale, jun., 605.
Annandale, jun., 664.
Miller & Miller, 735.
Snowdon, 742.
Robertson, 759.
Newton (*Draper*), 794.

**Paper, &c.—*cont.***
Towle (*Poole*), 877.
Riddell, 923.
Lackersteen & Bromfield, 1004.
McNicol, 1012.
Lake (*McConnell*), 1015.
Paterson, 1071.
Irvine & Johnson, 1084.
Miller & Miller, 1157.
Patton & Piper, 1336.
Newton (*Keegan*), 1422.
Jarvis, Robb & Masson, 1568.
Russell, 1587.
Colls, Atkinson, Michael & Knight, 1650.
Sinclair, 1666.
Torrance & Torrance, 1833.
Riddell, 1839.
Johnson (*Adamson*), 1853.
Demailly, 1863.
Casthelaz & Depoully, 1879.
Sinclair, 1930.
Love (*Lahousse*), 1963.
Broad, 1994.
De Negri, 2019.
Johnson (*Adamson*), 2168.
Monteiro, 2195.
Price & Irvine, 2209.
Dann (*Ahrens*), 2237.
Burton, 2252.
Ashcroft, 2291.
Brasier, 2388.
Brown, 2466.
Lewis, 2468.
Watson, 2570.
Granville, 2617.
Demailly, 2635.
Rydill, 2754.
Chaudet, 2871.
Robinson & Smith, 2953.
Latour, 3063.
Annandale, jun., 3183.
Martin, 3221.
Riddell, 3303.
Gale & Boyden, 3376.
Ashcroft, 3512.
Millbourn, 3524.

**Paper (application of):**
Field, 123.
Taylor, 168.
Allin, 227.
Turner, 630.
Snowdon, 742.
Wilkinson, 868.
Woodbury (*Smith*), 948.
Mackie, 996.
Newton, (*Graham*), 1035.
Bird, 1193.
Taylor (*Schneider*), 1288.
Newton (*Allen, Kimball, Mallory & Butterfield*), 1370.
Haseltine (*Harrington*), 1399.
Broel, 1507.
De Grandchamp, 1602.
Parrish (*Parrish*), 1610.
Perry (*Verster*), 1685.
Jensen (*Erichsen*), 1690.
Brode & Bash, 1786.
Cadman, 1862.
Robinson, 2262.
Harrington, 2423.
Harrington & Richards, 2538.
Dick, 2779.
Mills (*Heyl*), 2835.
Briggs, 2971.
Miccio, 3042.
Lake (*Pease*), 3102.

**Paper (cutting and ornamenting):**
Harrington, 109.
Davies, 137.
Lake (*Warth & Jobbins*), 293.
Mac Donald & Calverley, 1644.
Newton (*Hoe*), 1825.
Parkins, 1888.
Gedge (*Dérégnaucourt*), 3123.

**Paper hangings:**
Dann (*Ahrens*), 2237.
Schuurman, 3306.

**Paper hangings (measuring and marking lengths of):**
Lightbown, 338.

**Paper weights:**
Flack, 784.
Boynton, 1564.

**Parasols.** *See* "Umbrellas."

**Parchment and vellum:**
Duff, 519.
Weston, 2069.

**Parksine:**
Gale & Boyden, 3376.

**Pastry:**
Clark (*Tamin*), 2631.

**Pavement lights.** *See* "Windows."

**Paving.** *See* "Road making."

**Pearl hardening:**
Dann (*Ahrens*), 2237.

**Peas.** *See* "Grain and seeds."

**Peat:**
Larkin & White, 23.
Hays, 111.
Rock, 876.
Granger & Hyan, 1445.
Galloway, 1628.
Whieldon, Hays & Hays, 2100.
Sellars, 2500.
Johnson (*Muller*), 3289.

**Pen trays and wipers:**
Boynton, 1564.
Lake (*Catlin*), 2828.
Ricketts, 3163.

**Pendulum or balance-weight levels.** *See* "Plumbing."

**Pens; penholders; pencils; pencil cases; pencil point protectors:**
Avery, 101.
Long, 134.
Krueger, 257.
Newton (*George*), 428.
Blackburn, 465.
Johnson (*Reckendorfer*), 498.
Edwards, 761.
Welch & Laight, 1287.
Avery, 1322.
Blackburn, 1498.
Cohen, 1631.
Clark (*Barberot*), 1867.
Stewart, 2035.
Rollason & Brough, 2524.
Cooke, 2556.
Stokes, 2624.
Rollason & Brough, 2820.
Lake (*Catlin*), 2828.
Johnson (*Reckendorfer*), 2830.
Barker, 3133.
Perry, 3144.
Wiley, 3300.
Mason, 3469.

**Perambulators:**
Gedge, 719.
Thompson, 1475.
Warsop, 1972.
Prince, 3393.

**Perfumes.** *See* "Scent."

**Pessaries:**
Robertson, 690.

**Petticoats.** *See* "Dresses."

**Phosphorus:**
Anderson, 718.
Clark (*Rice & Driggs*), 1009
Irvine & Johnson, 1064.

**Phosphorus**—*cont.*
Tanner, 2060.
Anderson, 2134.
Anderson, 2216.
Clark (*Tamin*), 2631.
Anderson, 3493.

**Photograph and picture holders:**
Jacob, 153.
Norris (*Barnaby*), 1526.
McCalla, 2769.
Nunes (*Nunes*), 2931.

**Photography and photographic apparatus:**
Avery, 101.
Brown, 401.
Haseltine (*Leggo*), 540.
Edwards, 622.
Denne & Hentschel, 730.
Lake (*Goodes*), 1038.
Avery, 1322.
Gilbee (*Leggo & Desbarats*), 1409.
Grubb, 1968.
Haseltine (*Hedden & Hill*), 2166.
Stevens, 2590.
Edwards, 2799.
Wenderoth, 2909.
Stillman, 3069.

**Pickaxes:**
Wetmore, 100.
Sanders, 837.
Hardy, Stayner & Harrison, 2498.
Hardy & Stayner, 2527.

**Pickers for looms.** *See* "Weaving (pickers)."

**Picket-pins:**
Stevenson, 2914.

**Pickle-forks.** *See* "Knives."

**Picture books.** *See* "Books."

**Picture frames; hanging pictures:**
Smith (*Fairman*), 1013.
Robinson, Robinson & Skinner, 1121.
Gaunt, 2251.

**Pictures:**
Johnson (*Dunk*), 2300.
Edwards, 2799.
Vivien & Vivien, 2823.
Wenderoth, 2909.

**Piers; jetties:**
Cochrane, 520.
Kennard, 552.
Austin, 999.
Clark (*Walsh*), 1271.
Granville, 1506.
Galloway, 1628.
Aitken, 1886.
Cochrane, 2120.
Brannon, 2703.
McCool, 3193.

**Pikes:**
Wetmore, 100.

**Pile driving; piles:**
Kennard, 581.
Bailey, 2528.
Brannon, 2703.

**Pillars.** *See* "Columns."

**Pillows.** *See* "Upholstery."

**Pills:**
Clark (*Tamin*), 2631.

**Pincers, pliers and nippers:**
Newton (*Thompson*), 1104.
Clarke (*Clarke*), 1527.
Fryer & Steers, 2452.
Lake (*Garrick*), 2699.

**Pinions.** *See* "Wheels for machinery."

**Pins; breast pins:**
Avery, 101.
Welch & Laight, 290.
Welch & Laight, 1287.
Avery, 1322.
Tubbs, 1463.
Priqueler, 2255.
Jacob, 3111.
Perry, 3144.

**Pipes for smoking:**
Duncan, 1319.
Blumfeld (*Hiess*), 1320.
Hayes & Deakin, 2213.

**Pipes, tubes and syphons:**
Messenger, 53.
Lismann, 66.
Norman, 67.
Guest & Craddock, 144.
Allen, 255.
Green, sen., 270.
Tomkins, 285.
Quin & Eastham, 356.
Johnson (*Wheeler*), 388.
Hanson, 402.
Brown & Lockwood, 508.
Cochrane, 520.
Common, 543.
Boyd, 559.
Cotterill & Biddle, 572.
Bothams, 637.
Sutherland, 640.
Kaeuffer, 644.
Tylor, 685.
Millward (*Hoeller*), 699.
Barnes, jun., 704.
Kesterton, 707.
Wilkinson, 868.
Johnson (*Fish*), 897.
Underwood & Thomson, 922.
Newton (*Graham*), 925.
Harlow, 1033.
Newton (*Graham*), 1035.
Clark (*Demarest & Mott*), 1150.
Todd, 1110.
Harris, 1155.
Truscott, 1172.
Finley, 1173.
Bird, 1193.
Bolton, 1231.
Shackleton, 1309.
Martin, 1318.
Pavy, 1325.
Darwin, 1382.
Musgrave, 1439.
Videky (*Mayrargues*), 1469.
Lake (*Scribner*), 1491.
Shaw, 1497.
Wilde, 1511.
Somzé, 1622.
Burns, 1671.
Pinder, 1695.
Davies, 1716.
Brough & Fletcher, jun., 1777.
Skinner, 1795.
Lake (*Bartlett*), 1796.
Perkins, 1822.
Franks, 1829.
Croskey (*McKinley*), 1842.
Sutcliffe & Sutcliffe, 1844.
Gedge (*Creissard, Bros.*), 1864.
Vaughan, 1876.
Mills (*Lewis*), 1877.
Sinclair, 1930.
Brown, 1940.
Mirchin, 1952.
Davidson, 1962.
Chrystal, 1975.
Everitt, 2020.
Chameroy, 2033.
Lake (*De Wolfe*), 2106.
Abel (*Messrs. Rousseau*), 2229.
Campbell, 2234.
Webb, 2253.
Edge, 2268.
Laybourne, 2351.
Newton (*Pike*), 2356.
Goulding, 2381.
Newton (*Godfrey*), 2393.

**Pipes, &c.—*cont.***
Westo & Pinder, 2428.
Gillespie, 2429.
Westinghouse, jun., 2436.
Prosser, 2438.
Smith, jun., 2455.
Neilson, 2463.
Muratori, 2521.
Huggins, 2542.
Gedge (*Gaudefroy*), 2545.
Tinn, 2576.
Clark, 2688.
Holdsworth, 2767.
Greathead, 2768.
Brady, Dresser & Harris (*Washburn*), 2788.
Perkins, 2819.
Sugg, 2844.
Clark (*Herrmann*), 2852.
Roberts, Armitage & Haley, 2917.
Kochs, 2939.
Briggs, 2971.
Barnsley & Barnsley, 3003.
Wells, 3006.
Watt, 3011.
Gordon, 3070.
Brandon (*Fogelberg*), 3086.
Grainger, 3154.
Duncan & Robertson, 3197.
Allen, 3202.
Moore, 3215.
Garrett, 3235.
Brown, 3275.
Newton (*Grave*), 3280.
Petersen, 3324.
Verity & Verity, 3341.
Whitehead, 3362.
Johnson (*Westerman*), 3423.
Hurd, 3432.
Bayley, 3457.
Lake (*Mason*), 3464.
Calantarients, 3517.
McKechnie, 3523.

**Pistons and piston packings:**
Bouch, 64.
Horrocks (*Horrocks*), 117.
Clark (*Ellis*), 261.
Davey, 277.
Graddon, 383.
Scaife & Younger, 502.
King, 824.
Lake (*Cameron*), 838.
Johnson (*Fish*), 897.
Robson, 900.
Clark (*Harrod*), 1076.
Day (*Campbell & Clark*), 1259.
Ogilvie, 1300.
Lake (*Brandt, Lehr, Fisher & Brecht*), 1327.
Lindsay, 1436.
Taylor & Cooke, 1513.
Turner, Messrs., 1556.
Smart, 1780.
Henderson, 1787.
Perkins, 1822.
Giffard, 2011.
Fletcher, 2383.
Lake (*Brown*), 2417.
Clark (*Livingstone*), 2513.
Leatham, 2726.
Lake (*Wiegand*), 2793.
Burr (*Prall*), 2794.
Harris, 2846.
Clark (*Herrmann*), 2852.
Lake (*Cruickshank & Smith*), 2911.
Hunt (*Copeland*), 3045.
Crane & Moir, 3055.
Watteeu (*Duterne*), 3168.
Abel (*Heald, Morris & Sisco*), 3189.
Bray, 3367.
Newton (*Otis & Otis*), 3430.

**Pitch:**
Eveleigh, 443.
Newton (*Graham*), 1035.

**Plaisters:**
Seyd (*Brandrath*), 2938.
Townsend & Rollason, 2972.

**Plaited fabrics.** *See* "Fabrics."

**Planing metals.** *See* "Cutting metals."

**Plants and trees (application of):**
Smith, 76.
Brown & Bowron, 162.
Whitehead, 196.
Gibbs, 256.
Stewart & Wallace, 271.
Pironet, 369.
Duff, 519.
Dickson, 710.
Miller & Miller, 735.
Pout (*Rolls*), 745.
Newton (*Draper*), 794.
Lackersteen & Bromfield, 1004.
Lake (*McConnell*), 1015.
Bousfield (*Brown*), 1041.
Miller & Miller, 1157.
Barford, 1560.
Brandon (*De Gonzalo & Grisei*), 1815.
Clark (*Baker*), 1846.
Demailly, 1863.
Johnson (*Adamson*), 2168.
Stauf, 2294.
Brasier, 2383.
Wood (*Wood*), 2421.
Andrews & Gibbs, 2525.
Demailly, 2635.
Lockyer, 2889.

**Plateaux:**
Robinson, Robinson & Skinner, 1121.

**Plated goods; silver plate:**
Wood & Wilde, 1987.
Townsend, 1996.
De Lobstein, 2623.

**Plates.** *See* "Dishes."

**Playing cards.** *See* "Cards."

**Pliers.** *See* "Pincers."

**Ploughing, tilling and cultivating land:**
Lismann, 66.
Haseltine (*Ross*), 86.
Corbett, 135.
Head & Thomson, 434.
Sams, 449.
Atkinson, 481.
Fisken, 554.
Head & Jefferies, 588.
Tenwick, 626.
Whiting, 888.
Cartwright, 952.
Hornsby & Phillips, 982.
Bickerton & Bickerton, 1021.
Corbett, 1142.
Murray, 1153.
Edwards, 1196.
Reid, 1220.
Day (*Campbell & Clark*), 1259.
Bennett, 1273.
Hull (*Johnson*), 1313.
Jefferies, 1350.
Ransome, 1456.
Winder & Wood, 1496.
Davey, 1537.
Chapman, 1566.
Gray, 1591.
Coleman & Morton, 1630.
Macintosh (*Comstock*), 1637.
Lawes, 1660.
Giles (*Spratt*), 1672.
Giles (*Wallace*), 1673.
Mackinder & Johnson, 1694.
Corbett, 1699.
Reid, 1711.
Dickson, 1734.
Greig & Burton, 1782.
Ellis, 1799.
Mold & Mold, 1856.
Rainforth, 1898.
Pritchard (*Edwards*), 1904.
Gedge (*Lochhead & Mathieu*), 1910.
Day (*Campbell & Clark*), 2051.
Rosing, 2061.
Gilbert, 2104.
Billinghurst (*Ojeda*), 2365.

**Ploughing, &c.—*cont.***
Howard, 2424.
Murray & Garrard, 2739.
Clark (*Herrmann*), 2852.
Osmond, 2856.
Howard, 2896.
Winder, 2922.
Jensen (*Schmidt*), 3082.
Reeves, 3278.
Mackenzie, 3317.
Greenslade, 3443.

**Plugs or stoppers for tobacco pipes.** *See* "Tobacco."

**Plumbago or black lead:**
Hughes (*Ives*), 33.
Sanderson, 964.
Zenger, 2247.

**Plumbing and levelling:**
Houghton, 180.
Husband, 280.
Wilde & Sinclair, 2443.
White (*Delearte*), 2562.

**Pneumatic looms.** *See* "Weaving."

**Pocket books:**
Smith & Watson, 885.
Lake (*Brown, jun. & Buxton*), 1128.
Tonkinson, 1281.
Lake (*McDaniel*), 1355.

**Polishing and burnishing; polishing powders:**
Hughes (*Ives*), 33.
Lorberg, 244.
Spear, 762.
Ott, 890.
Claudet, 904.
Sanderson, 964.
Oliver, 1394.
Robertson, 1528.
Taylor, jun., & Prest, 1759.
Lake (*Lambert*), 1903.
Claudet, 2516.
Edwards, 2982.

**Pomade pots (chests or cases for holding):**
Bertin, 3118.

**Ponds (cleansing):**
Basin, 2289.

**Pontoons:**
Turnbull, 155.
Phalp, 301.
Agerup (*Matthiesen, Castenskiold & Brasen*), 736.
Lafage, 990.
Austin, 999.
Turnbull, 1878.
Hay, 2855.

**Porcelain.** *See* "Earthenware."

**Portfolios and stands:**
Bunyard, 580.
Flack, 784.

**Portmanteaus; trunks:**
Minns, 438.
MacCarthy, 2550.
Hall, 3106.
Clark (*D'Argy*), 3109.
Williams, 3154.
Hart, 3279.
Hall, 3314.

**Post cards or tablets:**
Akin, 515.

**Post office receiving houses (travelling):**
Greaves, 2234.

**Posts and poles:**
Tenwick, 626.
Allibon & Walsh, 693.
Kennan & Kennan, 1285.
Bayliss, 1289.
Lee & Rogers, 1597.
Fowke, 1621.
Sharrock, 2089.
Atkinson (*Prentiss*), 2352.
Desgoffe, 3170.
Touaillon (*André & Fleury*), 3199.

**Potash.** *See* "Alkalies."

**Potassium.** *See* "Sodium."

**Potatoe drills.** *See* "Sowing."

**Potatoes (cleaning and skinning):**
Marsh, 3160.

**Pots, pans, saucepans and cauldrons:**
Binnie, 834.
Breach, 961.
Newton (*Graham*), 1035.
Robertson, 1528.
Sinclair, 1930.
Hellier, 3453.

**Pottery.** *See* "Earthenware."

**Pouches:**
Oldroyd, 47.
Aramburu (*Reinlein*), 84.
Haseltine (*Allen*), 125.
Schwartz & Schwartz, 539.
Tribe, 1171.
Harding, 1663.
MacMillan, 3062.
Jaques & Sterne, 3437.

**Power indicators.** *See* "Governors."

**Power looms.** *See* "Weaving."

**Preserved fruit forks.** *See* "Knives."

**Preserving and preparing articles of food; extract of meat:**
Brand, 20.
Lake (*Scheller*), 309.
Durand, 460.
Fennelly, 526.
Dewar, 778.
Mills (*Valentine*), 956.
Drouyer, 1097.
Henley, 1233.
Wright, 1403.
Fox, 1435.
Schlesinger (*Dixon*), 1728.
Wanklyn & Bassie, 1801.
Bagrs, 1806.
Hunt (*Goodenough, jun.*), 1935.
Craig, 1956.
Bousfield (*Goddard & Adams*), 2064.
Prosor & Slattery, 2083.
De La Peyrouse, 2260.
Clark (*Tamin*), 2631.
Bernard, 2637.
Gedge (*Quilaverth*), 2698.
Widgery, 3149.
Marsh, 3160.
Henley, 3188.
Vasquez & Rosenberg, 3387.
Punshon, 3407.
Hugentobler (*Sacc*), 3454.

**Preserving grain or seeds from mildew, &c.** *See* "Grain (treating)."

**Preserving metallic and wooden surfaces:**
Berwick, 597.
Pout (*Rolls*), 745.
Marchisio & Stevens, 775.
Woore, 932.
Norfolk, 1046.

**Preserving, &c.—*cont.***
Wright (*Minor & Britton*), 1208.
Griffiths, 1532.
Moffatt, 1611.
Robson & Berwick, 1901.
Douglas & Watson, 2158.
Clark (*Dubois*), 2232.
Wood (*Wood*), 2421.
Vivien & Vivien, 2823.
Lake (*Thomas*), 2875.

**Preserving stone and bricks:**
Pout (*Rolls*), 745.
Marchisio & Stevens, 775.
Douglas & Watson, 2158.

**Presses, compressing and packing:**
Hughes (*Ives*), 33.
Hall, 41.
Lake (*Gard & Gard*), 70.
Nutt & Selby, 71.
Tommasi, 175.
Smith, 206.
Fawcett & Shackleton, 269.
Morand, 325.
Parker & Esson, 430.
Moore (*Spreckles*), 575.
Pollock, 623.
Turner, 630.
Ripley, 781.
Walker & Robinson, 798.
Lake (*Nilson*), 826.
Day (*Masson & Hodgert*), 950.
Nichols & Batley, 967.
Bradbury & Whittaker, 976.
McNicol, 1012.
Forman, 1040.
Lake (*Deverell*), 1083.
Weldon, 1184.
Henley, 1233.
Brocklehurst, 1261.
Grant, 1290.
Laycock, 1310.
Newton (*Thompson*), 1362.
Olpherts, 1369.
McKay & Macgeorge, 1371.
Clark (*Dervieux*), 1396.
Lindsay, 1436.
Sparrow, 1502.
Olpherts, 1539.
Marchisio, 1579.
Olpherts, 1586.
Wilson, 1625.
Hodgart (*Jones*), 1785.
Butterworth, 1793.
Tessier, 1834.
Vaughan, 1876.
Mills (*Lewis*), 1877.
Craig, 1956.
Wood & Wilde, 1967.
Whieldon, Hays & Hays, 2100.
Lowber, 2153.
Richardson, 2155.
Oatley, 2175.
Gardner (*Mauger*), 2350.
Gardner (*Mauger*), 2358.
Jermain (*Gordon*), 2369.
Brookes (*Du Bieux & Roettger*) 2378.
Smith (*Folacci & Lamie*), 2395.
Lake (*Baldwin*), 2406.
Gillespie, 2429.
Sowerby, 2433.
Gardner (*Mauger*), 2486.
Simpson, 2536.
Schuman, 2551.
Edwards (*Turr*), 2582.
Pollock, 2809.
Maw, 3001.
Marshall, 3119.
Widgery, 3149.
Williams, 3154.
Large, 3167.
Lake (*Butler*), 3264.
Box (*Surowiez*), 3406.
Goubet & Monrocq, 3506.
Williams, 3519.

**Pressure of fluids (regulating the).** *See* "Valves."

**Printing colours.** *See* "Dyes."

**Printing earthenware, bricks and tiles:**
Hollins, 682.

**Printing on enamelled and vitreous surfaces:**
Hughes (*Hoggson*), 3146.

**Printing paper; composing and distributing type:**
Lewthwaite, 39.
Nicholls, 75.
Davies, 137.
Smith, 206.
Winder, 321.
Haseltine (*Slingerland*), 410.
Parker & Esson, 430.
Haseltine (*Leggo*), 518.
Haseltine (*Leggo*), 540.
Payne, 561.
Thompson, 600.
Cropper (*Bainbridge & Yorkston*), 675.
Esson, 680.
Denne & Hentschel, 730.
Bond & Foster, 774.
Lake (*Nilson*), 826.
Davies, 918.
Cooker, 977.
Gooding, 978.
Mackie, 996.
Conisbee, 1029.
Laycock & Riley, 1030.
Cropper (*Morris*), 1050.
Newton (*Knight*), 1106.
Lambert, 1124.
Ellis & Aubertin, jun., 1213.
Clark (*Grawitz*), 1374.
Gilbee (*Leggo & Desbarats*), 1409.
Lake (*Laemmel*), 1464.
Bradshaw, 1508.
MacDonald & Calverley, 1644.
Newton (*Hoe*), 1825.
Casthelaz & Depoully, 1879.
Bowser, 1960.
Bremner, 1989.
Johnson (*Dunk*), 2300.
Cunningham, 2320.
Gardner (*Mauger*), 2350.
Gardner (*Mauger*), 2358.
Jermain (*Gordon*), 2369.
Nissen, 2449.
Gardner (*Mauger*), 2488.
Walker, 2674.
Simmons, Simmons & Smith, 2689.
Pinkney, 2745.
Edwards, 2799.
Pollock, 2940.
Duncan & Wilson, 3047.
Conisbee, 3114.
Newton (*Densmore*), 3177.
Walbrook, 3206.
Bond & Foster, 3237.
Greig & Greig, 3290.
Schuurman, 3306.
McCready, 3365.
McElcheran, 3446.
Tickle, 3490.
Goubet & Monrocq, 3506.

**Printing telegraphs.** *See* "Telegraphic printing."

**Printing window blinds:**
Cadman, 1862.

**Printing wood:**
Mills, 234.
McElcheran, 3446.

**Printing woven and other fabrics and yarns:**
Roeckner, 119.
Walton, 199.
Lake (*Kemmer*), 234.
Holland, 334.
Brown, 401.
Carr, Butterworth & Hamer, 577.
Knowles, Ashworth & Ashworth, 927.
Laycock & Riley, 1030.
Cadman, 1148.

**Printing fabrics, &c.—*cont.***
Walker, 1151.
Clark (*Grawitz*), 1274.
Laycock, 1405.
Bradshaw, 1508.
Peacock, 1661.
Edmondson, Bros., 1828.
Cadman, 1862.
Casthelas & Depoully, 1879.
Mitchell, 2145.
Abel (*Grison*), 2362.
Heywood, 2720.
Pinkney, 2745.
Briggs, 2971.
Rocliffe & Radcliffe, 2973.
Tongue (*Meynier*), 3126.
Oldroyd & Oldroyd, jun., 3294.
Schuurman, 3306.
Schützenberger & De Lalande, 3377.

**Projectiles for fire-arms.** *See* "Shot."

**Propelling carriages; locomotion on land:**
Lake (*Jones, Smith & Weaver*), 294.
Armour (*Lamm*), 517.
Salmon, 695.
Fell, 1246.
Thompson, 1270.
Wilson, 1625.
Rowan, 1808.
Galloway, 1958.
Grantham, 1991.
Pidding, 2053.
Rosing, 2061.
Johnson (*Perreaux*), 2208.
Greaves, 2224.
Fothergill-Cooke, 2313.
Ainsley, 2569.
Gowans, 2643.
Thompson, 3039.
Wilson, 3067.
Lepage, 3216.
Newton (*De Forville*), 3281.

**Propelling machinery (feed mechanism):**
Helwig, 13.
Willoughby, Messrs., 16.
Newton (*Hessin*), 289.
Lake (*Warth & Jobbins*), 293.
Clegg, 366.
Haseltine (*Slingerland*), 410.
Macdermott & Williams, 468.
Whitehead, 480.
Arnold, 532.
Pörtner (*Pollack, Schmidt & Co.*) 530.
Johnson (*Brown*), 532.
Payne, 561.
Thompson, 600.
King, 629.
Soutar, 647.
Millward (*Hoeller*), 699.
Lake (*Nilson*), 826.
Thornton & Wear, 831.
Davies, 918.
Horsfall, 951.
Nichols & Batley, 967.
Crighton & Crighton, 1045.
Shakespear & Illston, 1057.
Bradley, 1075.
Townsend (*Goddu*), 1079.
Wormald & Hall, 1090.
Seekings, 1256.
Rogers, 1280.
Donald & Atkey, 1302.
Benson (*Willson*), 1446.
Dean & Horton, 1472.
Lake (*Foote & Randall*), 1474.
Lake (*Dyer*), 1510.
Bottomley & Haggis, 1515.
Jones, 1617.
Willcox (*Willcox & Carlston*), 1744.
Goodall (*Mouger*), 1880.
Herring, 1916.
Hughes (*Hughes*), 1931.
Pechenart & Miette, 1964.
Petrie, jun., 2027.
Stockwell (*Howe Machine Co.*), 2030.
James, 2045.

**Propelling machinery, &c.—*cont.***
McCarter, 2487.
Newton (*Counord*), 2895.
Pollock, 2940.
Robinson & Smith, 2953.
Kochs, 3076.
Wilders, 3145.
Smyth, 3166.
Taylor, 3191.
Booth, 3298.
Bentall, 3307.
Hughes (*Kellogg*), 3473.
Kelley, 3498.

**Propelling machinery (gauges, guides and traversers):**
Haseltine (*Kellogg & Cutler*), 21.
Corbett, 135.
Seddon, 716.
Adams, 732.
Broadbent, 799.
Frewer, 887.
Clark, 953.
Lake (*Smith*), 1058.
Lister & Reixach y Gispert, 1117.
Priest & Priest, 1791.
Butterworth, 1793.
Parkins, 1888.
De Bergue & De Bergue, 1914.
Brewer (*Appleton*), 1945.
Bremner, 1989.
Sturgeon, 2185.
Bottrill, 2419.
McCarter, 2487.
Pörtner (*Pollack*), 2932.
Mabson, 3495.

**Propelling or driving machinery; transmitting power and motion:**
Willoughby, Messrs., 16.
Newton (*Taylor*), 25.
Mitchell, 30.
Lomax & Lomax, 148.
Tongue (*Thompson*), 209.
Lake (*Jones, Smith & Weaver*), 294.
Bell, Urquhart & Lindsay, 306.
Lightbown, 338.
Blandford, 374.
Glover & Hargreaves, 459.
Smith, 506.
Wright, 516.
Armour (*Lamm*), 517.
Doeg, 544.
Payne, 561.
Turner, 579.
Ramsden, 589.
Newall, 599.
Starley, 620.
Cropper (*Bainbridge & Yorkston*), 675.
Bonneville (*Martin*), 721.
Lake (*Harris*), 727.
Booth (*Draper & Draper*), 737.
Smith & Donald, 805.
Eyton, 812.
Newton (*Collom*), 833.
Clark (*Squier & Squier*), 892.
Hughes (*Snoeck*), 920.
Bailey, 938.
Tamin, 989.
Pilling & Nussey, 1037.
Lake (*Smith*), 1058.
Pidgeon & Manwaring, 1214.
Suggitt, Court & Court, 1254.
Thompson, 1270.
Griffin (*Wood*), 1324.
Slater, 1356.
Laycock, 1405.
Green, 1421.
Jones, jun. & Bell, 1477.
Stephens, 1493.
Fawcett, 1595.
Fisken, 1614.
Wilson, 1625.
Lake (*Sapp*), 1639.
Quinn, 1703.
Griffin, 1736.
Kaeuffer, 1794.
Smith & Coventry, 1812.
Edmondson, Bros., 1826.
Gedge (*Lochhead & Mathieu*), 1910.
Galloway, 1958.

**Propelling machinery, &c.—*cont.***
Sprague (*Thorne*), 1974.
Dobson & Macqueen, 2037.
Winter, 2121.
Roberts, 2135.
Clark (*Lull*), 2162.
Johnson (*Nimmo, Moran, Stousse & Ensinger*), 2174.
Westlake & Thompson, 2187.
Borland, 2221.
Lake (*Utley & Ross*), 2238.
Priqueler, 2255.
Carr, 2334.
Clark (*Williams, Williams & Douglass*), 2414.
Lake (*Jones & Lawrence*), 2426.
Jones, 2456.
Dronsfield, 2474.
Hughes (*Snoeck*), 2581.
Clark (*Gordon*), 2632.
Jackson, 2656.
Dunn, 2748.
McAdam, 2861.
Guzman, 2866.
Lawson (*Goodwin*), 2870.
Hobson, 3027.
Thompson, 3039.
Kochs, 3076.
Hughes, 3129.
Macintire, 3247.
Stewart, 3269.
Berlet, 3336.
Winter, 3345.
Jones, 3373.
Winter, 3420.
Edlington & Edlington, 3433.
Mabson, 3495.
Goubet & Monrocq, 3506.

**Propelling ships; locomotion on water:**
Newton (*Taylor*), 25.
Lake (*Main*), 340.
Taylor & Adams, 355.
Angell, 390.
Henley, 396.
Horton, 416.
Griffiths & Griffiths, 536.
Doeg, 544.
Carter, 638.
Dykes, 663.
Wimshurst, 708.
Boyman, 944.
Newton (*Hunter*), 971.
Muntz, 1143.
Bourne (*Campell*), 1265.
Thompson, 1270.
Lake (*Pratt*), 1375.
Handcock, 1616.
Long, 1717.
Philpot (*Lucovich*), 1779.
Harrington, 1820.
Rothwell, 1929.
Galloway, 1958.
Zahn, 2128.
Barr (*Young*), 2220.
Haseltine (*Leggo*), 2254.
Hirsch, 2257.
Newton (*Babbitt*), 2345.
Newton (*Godfrey*), 2393.
Abel (*Aubert*), 2416.
Lowman, 2508.
Kilner, 2543.
Spartali, 2597.
Harland, 2756.
Burr (*Prall*), 2794.
Rothwell, 2825.
Griffiths, 2991.
Lawson (*Goodwin & Sanford*), 3024.
Thompson, 3039.
Wilson, 3067.
Downing (*De Normann*), 3117.
Hughes, 3129.
Watteeu (*Duterne*), 3168.
Lepage, 3216.
Rennie, 3422.

**Protecting seed crops.** *See* "Grain crops."

**Pulleys and pulley blocks:**
Winter, 313.
Hansen, 328.

**Pulleys, &c.**—*cont.*
Henderson, 397.
Tenwick, 626.
Cherry, 809.
Eyton, 812.
Shaw & Boardman, 1283.
Tangye, 1449.
Munson (*Clark*), 1525.
Robertson, 1528.
Campbell, 1678.
Munson (*Clark*), 1760.
Day (*Campbell & Clark*), 2051.
Rosing, 2061.
Finlayson, 2141.
Griffin (*Chadborn & Coldwell*), 2397.
Eades & Eades, 2999.
Lafferty & Lafferty, 3322.
Newton (*Otis & Otis*), 3430.
Grace, 3492.

**Pulping roots.** *See* "Cutting roots."

**Pumps; raising and pumping water and other liquids:**
Willoughby, Messrs., 16.
Mills, 88.
Galloway & Beckwith, 247.
Clark (*Ellis*), 261.
Green, sen., 270.
Davey, 277.
Walker, 298.
Graddon, 383.
Budenberg (*Mühlrad*), 454.
Jackson, 489.
Glaskin, 492.
Guthrie & Stevenson, 531.
Budenberg (*Shrhard*), 595.
Murphy, 646.
Kittoe & Brotherhood, 648.
Robins, 677.
Tylor, 685.
Salmon, 695.
Porter, 807.
Lake (*Cameron*), 838.
Johnson (*Schmid*), 906.
Lake (*Peters*), 1007.
Forman, 1040.
Lake (*Deverell*), 1063.
Morgan-Brown (*Goulding*), 1199.
Stapler & Sinclair, 1203.
Day (*Campbell & Clark*), 1259.
Thompson, 1270.
Ogilvie, 1300.
Walker, 1368.
Reinlein, 1376.
Evans & Evans, 1576.
Ramsbottom, 1740.
Brough & Fletcher, jun., 1777.
Cole, 1813.
Warner & Brooke, 1919.
Rothwell, 1929.
Haskell, 2049.
Jones & Gray, 2103.
Jochumsen, 2307.
Fletcher, 2383.
Brasier, 2388.
Newton (*Godfrey*), 2393.
Barlow, 2401.
Smith, 2507.
Lees, 2565.
Plessner, 2587.
Darlington, 2657.
Slagg, 2697.
Burr (*Prall*), 2794.
Guzman, 2866.
Newton (*Wagstaff*), 2937.
Okes, 2980.
Thompson, 3039.
Clarkson, 3061.
Abel (*Heald, Morris & Sisco*), 3189.
Bridson, 3190.
Smith, 3240.
Gwynne & Beale, 3449.
Wightman, 3487.

**Punching and clipping paper and tickets:**
Haseltine (*Small*), 124.
Mackie, 996.
Flack, 2898.

**Punching or perforating.** *See* "Boring."

**Punching or piercing designs or patterns in fabrics, &c.:**
Broel, 1507.

**Purses and portmonnaies:**
Minns, 438.
Schwartz & Schwartz, 539.
Smith & Watson, 885.
Lake (*Brown, jun. & Buxton*), 1123.
Tribe, 1171.
Tonkinson, 1281.
MacMillan, 3062.
Hall, 3314.

**Pyrometers; aëro-pyrometers:**
Newton (*Spencer*), 907.
Siemssen, 965.

## Q.

**Quarries.** *See* "Bricks."

**Quilting machines.** *See* "Sewing."

## R.

**Rafts:**
Starr (*Wotton*), 296.
Lafage, 990.
Saunders, 2270.
Hay, 2855.

**Rags and waste:**
Smith & Granville, 372.
Toepler, 1052.
Walker, 1151.
Miller & Miller, 1157.
Curtis (*Palmer*), 1410.
Lake (*Hidden*), 1653.
Blick, 2012.
Knab, 2056.
Smart, 2143.
Johnson (*Adamson*), 2168.
Newton (*Hayem*), 2271.
Varley & Varley, 2386.
Gibbs, 2539.
Rydill, 2752.
Rydill, 2753.
Rydill, 2754.
Smith, 2784.
Rydill, 2807.
Brown, 2888.
Hughan, 3060.
Latour, 3063.
Gale & Boyden, 3376.

**Railings:**
Tousillon (*André & Fleury*), 3190.

**Railway breaks.** *See* "Breaks for carriages."

**Railway buffers:**
De Kierzkowski, 193.
Waller, 770.
Paget (*Lemoine*), 1257.

**Railway carriage umbrella stands; removing dust, saliva, &c., from carriages.**
Bolton, 2707.
Brown, 3354.

**Railway carriages:**
Fell, 1.
Cockshoot, jun., Wrigley & Weatherill, 179.
Burr, 258.
Corlett, 670.
Newton (*Gates*), 749.
Waller, 770.
Wilson, 991.
Ash, 1223.

**Railway carriages**—*cont.*
Fell, 1246.
Gardner, Lowe, Wood, Wood & Pickering, 1249.
Thompson, 1270.
Shackleton, 1309.
Broomhall, 1328.
Johnson (*Warden*), 1337.
Pugin & Ayres, 1406.
Lee, 1521.
Lake (*Pullman*), 1523.
Lake (*Pullman*), 1524.
Wilson, 1625.
Day, 1627.
Clark (*Corbin*), 1676.
Hollinshead, 1804.
Baggs, 1806.
King, 1925.
Isherwood, 1941.
Wilson, 1950.
Lake (*Calkins*), 2044.
Pidding, 2053.
Welch, 2303.
Bulkeley, 2305.
Fothergill-Cooke, 2313.
Hulme, 2361.
Knowland & Smith, 2367.
Zamoyski & Jackson, 2372.
Lake (*Hershey, Geer, Dudley & Gaggin*), 2467.
Smith (*Polacci*), 2493.
Mathews, 2534.
Hughes, 2675.
Sugg, 2844.
Wright, 2860.
Neale, 2950.
Trevithick, 2977.
Heald, jun., 3072.
Smith (*Messrs. Tiranoff & Kouskoff*), 3164.
Lepage, 3216.
Buckland, 3253.
Dence (*Martorelli*), 3384.
Wood, 3419.
Webb, 3442.
Johnson (*Colton*), 3507.

**Railway carriages and wagons (transporting across channels, &c.):**
Leslie, 2332.
Leigh, 3411.

**Railway wheels.** *See* "Wheels for carriages."

**Railways (coupling and joining carriages):**
De Kierzkowski, 193.
Naylor, 1245.
Newton (*Crane*), 1354.
Rogers, 1924.
Fairlie, 2043.
Pécaud, 2546.
Brady, Dresser & Harris (*Washburn*), 2788.
Rogers, 3236.
Matthew, 3382.

**Railways (guiding, moving or shunting carriages):**
Chase, 2348.
Fairbairn, 3497.

**Railways (over-head):**
Pavy, 1325.

**Railways (permanent way, rails, chairs and sleepers):**
Blomerley, 40.
Wrigley (*Greiff*), 58.
Lismann, 66.
Haseltine (*Holley*), 69.
Foulger, 136.
Keirby, 140.
Gilbert & Ellis, 169.
Dyer, 275.
Johnson (*Wheeler*), 388.
Wilson, 418.
Smith, 427.
Tweedy, 432.
Larsen, 433.
Ellis, 488.

**Railways, &c.—*cont.***
Radford, 560.
Buxton, 564.
Kennard, 582.
Davies, 592.
Hargreaves & Rostron, 618.
Cross, 801.
Sarney, 851.
Clark, 953.
Barber (*Forbes*), 1212.
Fell, 1246.
Leloup (*Libotte*), 1307.
Pavy, 1325.
Williams, 1392.
Dowson & Dowson, 1488.
Griffiths, 1522.
Barker & McFarlane, 1567.
Trevithick, 1575.
Page, 1603.
Gedge (*Veauvy*), 1634.
Clark (*Corbin*,) 1676.
Lidderd, 1701.
Haddan, 1953.
Edwards, 2018.
Dutton, 2098.
Thompson, 2278.
Hughes, 2301.
Fothergill-Cooke, 2313.
Gowans, 2343.
Laybourne, 2351.
Blakemore, Sherring & Horstman, 2379.
Livesey, 2385.
Lake (*Eaton*), 2403.
Ireland & Ireland, jun. (*Pink*), 2548.
Morgan & Van der Meulen, 2639.
Gowans, 2644.
Allan & Gregory, 2693.
Williams & Price, 2705.
Burge, 2722.
Vivien & Vivien, 2823.
Turner, 2843.
Heath, 2913.
Wells, 3006.
Smith (*Messrs. Tiranoff & Kousakoff*), 3164.
Austin & Ellis, 3219.
Lake (*La Bréche-Viger*), 3246.
Pinkus, 3359.
Scott, 3402.

**Railways (points and switches):**
Fell, 1.
Foulger, 136.
Wilson, 192.
Cochrane, 349.
Stevens, 435.
Baines, 779.
Duxbury, 988.
Fell, 1246.
Saxby, 1601.
Saxby, 1655.
Dutton, 2098.
Lake (*Hall & Van Blarcom*), 2150.
Clark (*Robinson*), 2280.

**Railways (portable):**
Pidding, 2053.
Pidding, 2873.

**Railways (turntables):**
Fell, 1.
Benson (*Gardner & Turrell*), 332.
Fell, 1246.

**Railways (working by endless rope):**
Fothergill-Cooke, 2313.

**Raised patterns.** *See* "Embossing."

**Raising heavy weights.** *See* "Hoists."

**Raising ships or vessels:**
Turnbull, 155.
Briggs, 1584.
Turnbull, 1878.
Parlour, 2664.
Taylor, 3258.
Siebe, Gorman & Christy, jun., 3441.

**Raising water.** *See* "Pumps."

**Ramparts:**
Mallet, 327.
Brannon, 2703.

**Rasping.** *See* "Filing."

**Rat and mouse cages and traps:**
Ford, 408.
Chase, 2877.

**Ratchet braces;**
Griffin (*Chadborn & Coldwell*), 2397.

**Reading desks:**
Cuff, 2410.

**Reading (teaching).** *See* "Teaching."

**Reaping; mowing; making hay:**
Lake (*Osborne*), 7.
Bickerton & Bickerton, 567.
Tenwick, 626.
Yull & Griffin, 771.
Brigham & Brigham, 815.
Marsden, 940.
Wallace, 1190.
Pidgeon & Manwaring, 1214.
Mann & Parker, 1244.
Griffin (*Wood*), 1324.
Jones, jun. & Bell, 1477.
Howcroft & McGregor, 1582.
Smith (*McCormick*), 1726.
Hornsby & Phillips, 1798.
Wray, 1884.
Lavers, 1964.
Griffin (*Chadborn & Coldwell*), 2397.
Bickerton & Bickerton, 2506.
Furness, 2641.
Ball, 2646.
Lawson (*Goodwin*), 2872.
Denton, 2981.
Osborn, 2994.
Castle & Turton, 3125.

**Reclaiming land from the sea:**
Brodie, 1957.
Cochrane, 2130.
Petersen, 3324.

**Reefing sails.** *See* "Ships' sails."

**Reeling yarns.** *See* "Winding."

**Reels for coiling flexible tubing.** *See* "Coiling."

**Reflectors:**
Skelton, 1087.
Lake (*Bartlett*), 1432.
Brough & Fletcher, jun., 1777.
Verity, 2511.
Holmes, 2966.
Eley, 3181.
Lake (*Bartlett*), 3217.
Harrison, 3396.

**Refrigerating, cooling, breaking and making ice:**
Hydes, Bennett & Bennett, 54.
Procter, 367.
Boyes, 505.
Paget & Asher, 511.
Roberts, 524.
Kaeuffer, 644.
Rock, 876.
Steel & Wilson, 975.
Murdoch (*Roettger*), 992.
Normandy, 1042.
Gamgee, 1189.
Hughes (*Hughes*), 1230.
Gilbody (*Reed*), 1295.
Marchant, 1490.
Sproul, 1638.
Sinclair, 1666.
Kaeuffer, 1794.
Baggs, 1806.
Fenton, 1897.
Bousfield (*Goddard & Adams*), 2064.
Norman, 2173.

**Refrigerating, &c.—*cont.***
Hildesheim, 2217.
Paget & Asher, 2228.
Coles, 2324.
Prosser, 2438.
Long, 2563.
Coles, 2573.
Murdoch (*Roettger*), 2701.
Spence, 2834.
Cotterell, Prudencio & Wilcocks, 2945.
Crane & McGrath, 2989.
Willison, 3026.
Johnson (*Westerman*), 3423.
Purkis, 3451.
Hughes (*Twining*), 3474.
Ascough, 3478.

**Registering, indicating and marking apparatus:**
Stanford & Price, 61.
Haseltine (*Small*), 124.
Tatters, 412.
Wright, 621.
Baines, 779.
Innes, 817.
Reid, 875.
Gooding, 978.
Harman & Mills, 1112.
Newton (*Newell*), 2287.
Vagnolini, 2336.
Haseltine (*Roff, Hoffman & Lukey*), 2408.
Tronchon, 3016.
Grace, 3020.
Hall, 3050.
Harding, 3194.
Holten, 3309.
Vojacek, 3334.
Tylor, 3339.

**Removing slime from wrecks.** *See* "Foundered vessels."

**Reservoirs.** *See* "Cisterns."

**Resin; resinous substances:**
Riddell, 923.
Smith (*Du Motay*), 1725.
Johnson (*Adamson*), 1853.
Johnson (*Adamson*), 2168.
Chaudet, 2871.

**Respirators:**
Nightingale, 3257.

**Retorts:**
Larkin & White, 23.
Porter & Lane, 201.
Nevill, 273.
Church, 305.
Mines & Evans, 387.
Eveleigh, 443.
Roberts, 524.
Wilson, 717.
Newton (*Davison*), 857.
Newton (*Spencer*), 907.
Box, 1049.
Borgnet, 1092.
Chance (*Gridley*), 1243.
Von Bolzano, 1349.
Kent, 1565.
Whieldon, Hays & Hays, 2100.
Zenger, 2247.
Gillespie, 2429.
Lake (*Potter*), 2599.
Granville, 2617.
Macfarlane, 2734.
Duncan & Robertson, 3197.
Payne, 3273.
Somerville & Robinson, 3335.
Moffat, 3344.
Clark (*Colacicchi*), 3447.

**Reversing apparatus for machinery:**
Rockliff, 571.
Winstanley, 780.
Broadbent, 799.
Wilson, 1335.
Lake (*Pratt*), 1375.
Oliver, 1415.
Lake (*Scott*), 1503.

**Reversing machinery—*cont.***
Parkinson, 1573.
Handcock, 1616.
De Bergue & De Bergue, 1914.
Budenberg (*Buss*), 1954.
Galloway, 1958.
Brown, 2253.
Smith, 2507.
Brown, 2539.
Stevenson, 2654.
Clark (*Herrmann*), 2852.
Hobson, 3027.
Perry, 3066.
Nussey & Leachman, 3330.
Newton (*Otis & Otis*), 3430.

**Ribbons.** *See* "Trimmings."

**Ricking straw, &c.** *See* "Stacking."

**Rifling.** *See* "Boring."

**Ringing bells.** *See* "Bells."

**Rings:**
Richards, Lawrence & Lingard, 935.

**Ripping instruments:**
Lake (*Woods*), 1708.

**River banks (protecting):**
Petersen, 3324.

**Rivers (cleansing):**
Lungley, 210.
Basin, 2289.
D'Humy, 3041.

**Rivets.** *See* "Nails."

**Rivetting machines.** *See* "Metals (forging)."

**Road making and paving:**
Mallet, 327.
Goodman, 358.
Tate, 360.
Aveling, 509.
Cochrane, 520.
Wright, 548.
Kennard, 582.
Wright, 723.
Johnson (*Browne & Hope*), 741.
Newton (*Jenty*), 750.
Proudfoot, 889.
Newton (*Graham*), 925.
Descamps & Breh, 941.
Newton (*Graham*), 1035.
Macomber, 1315.
Chadwick, 1479.
Dowson & Dowson, 1488.
Galloway, 1628.
Ord & Maddison, 1652.
Bessemer, 1737.
Newton (*Brennan*), 1743.
Galloway, 1757.
Marsden, 1769.
Tibbitts & Fullwood, 1783.
Skinner, 1796.
Croskey (*McKinley*), 1842.
Norton, 1938.
Paul, 1965.
Bonneville (*Guerriero, Cadous & O'Connell*), 2096.
Goodman, 2114.
Cochrane, 2120.
Emmens, 2186.
Lake (*Elder*), 2191.
Livesey, 2385.
Johnson, 2391.
Bunning & Chapman, 2402.
Bresson, 2407.
Lake (*Vandemark & Scharf*), 2554.
Rogers & Soares, 2586.
Candy, 2625.
Norton, 2627.
Burge, 2723.
Emmens, 2736.
Mulholland, 2772.
Martin, 2774.
Bennett & Rowe, 2780.
Granville, 2829.
Johnson (*Sebille*), 2906.

**Road making and paving—*cont.***
Brown, 2949.
Grindley, 2951.
Ellis, 2990.
Macintosh, 2992.
Holmes, 3015.
Spencer, 3094.
Price (*Martins*), 3095.
Sands, 3099.
Norton, 3198.
Austin & Ellis, 3219.
Gowans, 3283.
Johnson (*Muller*), 3289.
Stanley & Stanley, 3291.
Jupp, 3338.
Evans, 3357.
Pinkus, 3359.
Ellis, 3383.
Pender & Rae, 3398.
Hurd, 3432.

**Roads (distributing grit to prevent slipping):**
Ney, 3033.
Ney, 3131.
Gibbs, 3319.

**Roasting coffee.** *See* "Coffee."

**Rollers.** *See* "Cylinders."

**Rolling metals.** *See* "Metals (rolling)."

**Roofing:**
Wade & Cherry, 74.
Farrell, 317.
Johnson (*Wheeler*), 388.
Johnson (*Hyatt*), 437.
Thomas, 473.
Descamps & Breh, 941.
Tall, 1001.
Newton (*Graham*), 1035.
Bennett, 1115.
Wright (*Minor & Britton*), 1208.
Hyatt, 1482.
Bennett, 1557.
Jensen (*Erichsen*), 1690.
Tibbitts & Fullwood, 1783.
Croskey (*McKinley*), 1842.
Hyatt, 2116.
Hyatt, 2119.
Newton (*Hayes*), 2210.
Lake (*Cantwell*), 2236.
Neilson, 2483.
Muratori, 2531.
Lake (*Vandemark & Scharf*), 2554.
Brannon, 2703.
Mulholland, 2772.
Hornblower, 2846.
Briggs, 2971.
Howitt, 3113.
Hyatt, 3124.
Jupp, 3338.

**Roots (drying).** *See* "Drying."

**Ropes, cordage, twine, oakum, wire ropes:**
Payne, 19.
Guest & Craddock, 144.
Gibbs, 256.
Newall, 611.
Newton (*Draper*), 794.
Eyton, 812.
Lake (*McConnell*), 1015.
Unsworth, 1088.
Wright (*Minor & Britton*), 1208.
Payne & Newton, 1656.
Blick, 2012.
Liardet, 2013.
Monteiro, 2195.
Pittman, 2634.
Latour, 3063.
Moffatt, 3528.

**Rouge.** *See* "Paints."

**Roughing horses.** *See* "Horseshoes."

**Roving frames.** *See* "Spinning (twisting)."

**Rudder pintles and cases:**
Harle, 1781.
Atkin, 2897.

**Rugs and mats:**
Milburn, 1762.
Lake (*Gates*), 2214.
Dodgeon, 2532.
Rydill, 2752.
Brown, 2854.

**Rules:**
Stiles & Elsdon, 500.
Lefevre, 1665.
Lake (*Garrick*), 2699.

**Ruling paper in irregular forms:**
Walkington, 3053.

## S.

**Saccharometers:**
Blaise, 2594.

**Sacks (filling, raising, shooting and emptying):**
Wilkerson, jun., 3137.

**Sad irons.** *See* "Ironing."

**Saddlery.** *See* "Harness."

**Safes:**
Johnston, 146.
Benson (*Gardner & Turrell*), 332.
Ratcliff, 1221.
Broomhall, 1328.
Farrel, 1761.
Haseltine (*Rowell & Duncan*), 3106.
Corliss, 3128.

**Safes for provisions:**
Gilbody (*Reed*), 1295.
Baggs, 1806.
Coles, 2324.
Coles, 2573.

**Sails for ships.** *See* "Ships' sails."

**Salt; reducing salt to powder:**
Haseltine (*Leckie*), 909.
Hildesheim, 2217.
Bull & Hall, 2747.
Bramwell, 2962.
Hancock & Hancock, 3353.

**Salt cake:**
Claudet, 904.
Claudet, 2516.

**Saltpetre or nitre:**
Hughan, 3060.

**Sample cases:**
Ricketts, 3163.

**Sand papers; sand papering machines.** *See* "Emery papers."

**Sanding floors, corridors and hallways:**
Ney, 3131.

**Sanitary and similar vessels:**
Naylor, 2443.
Wall, 2526.

**Sardine boxes (opening).** *See* "Opening tins."

**Sashes and skylights.** *See* "Windows."

**Satchels.** *See* "Bags."

**Saucepans.** *See* "Pots, pans, &c."

**Saving from drowning.** *See* "Life preservers."

**Saving fuel.** *See* "Fuel."

**Savonule.** *See* "Alkalies."

**Saws; saw blades:**
Durant (*Tucker & Snell*), 262.
Wilkinson, 499.
Sanders, 837.
Robertson, 1528.
Taylor, jun. & Prest, 1759.
Townsend, 1996.
Munro & Adamson, 2034.
Clark (*Green*), 2331.
Jackson, 2555.
Holmes (*Emerson*), 2706.
Lake (*La Bréche-Viger*), 3246.

**Scaffolds.** *See* "Builder's hoists."

**Scale beams.** *See* "Weighing."

**Scarfs.** *See* "Neckties."

**Scent and perfumes:**
Jacob, 153.
Walkland & Unwin, 241.
Richards, Lawrence & Lingard, 935.
Bateson, 1137.
Stocker, 1149.
De La Peyrouse, 2260.
Bertin, 3118.

**School desks and furniture:**
Finch, 186.
Hammer, 413.
Wippell, 550.
Philip, jun., 917.
Stokoe, 1971.
Heinemann, 2783.

**Scissors and shears:**
Ward (*Sargeant*), 1060.
Wallen, 1197.
Jervis, 1721.
Marsden, 1981.
Smith (*Lengelée, Bouttier & Vincent*), 2363.
Drew, 2464.
Haseltine (*Gladwin & Hotchkiss*), 3176.

**Scouring floors:**
Breitenbach, 1618.

**Screens or blinds.** *See* "Window blinds."

**Screens or sieves.** *See* "Sifting."

**Screws; screw drivers; screw wrenches:**
Christopher & Lackersteen, 282.
Woore, 932.
Rogers, 1280.
Gaunt, 2251.
Priqueler, 2255
Hughes, 2301.
Fryer & Steers, 2482.
Davies & Leyland, 2622.
Lake (*Garrick*), 2699.

**Scudding skins.** *See* "Leather."

**Sculpture:**
Porter, 802.
Moffatt & Henley, 1 827.

**Scutching fibres.** *See* "Spinning (opening)."

**Seals for locks, &c.:**
Mills (*Brooks*), 1440.

**Sea-sickness (preventing):**
Brewer (*Edard & Bazault*), 1947.

**Sea-walls.** *See* "Breakwaters."

**Seaweed (treating):**
Sellars, 1817.
Tessier, 1834.
Angell, 2878.
Morris (*Pellieux & Maze-Launay*), 3400.

**Secret correspondence.** *See* "Cyphers."

**Sediment and incrustation (preventing).** *See* "Oxidation."

**Seed sowing.** *See* "Sowing."

**Seidlitz powders.**
Ripley, 781.

**Sentry boxes:**
Lafage, 990.

**Setting cards.** *See* "Grinding and surfacing."

**Sewage (treating).** *See* "Manure."

**Sewers.** *See* "Drains."

**Sewing and embroidering:**
Newton (*Howe*), 6.
Helwig, 13.
Haseltine (*Kellogg & Cutler*), 21.
Starley, 121.
Lomax & Lomax, 148.
Winter, 157.
Tongue (*Thompson*), 209.
Henry (*Mack & Blake*), 254.
Turner, 295.
Clegg, 366.
Blanford, 374.
Pörtner (*Pollack, Schmidt & Co.*), 530.
Gedge (*Von Conring & Voigt*), 566.
Starley, 620.
Johnson (*Drown, jun.*), 633.
Lake (*Harris*), 727.
Pruyn, 814.
Mills (*Goodyear, jun.*), 937.
Pilling & Nussey, 1037.
Shakespear & Illston, 1057.
Lake (*Smith*), 1058.
Wormald & Hall, 1090.
Lake (*Beckwith*) 1201.
Galloway, 1347.
Slater, 1356.
Benson (*Willson*), 1446.
Broel, 1507.
Howse, 1541.
Robertson, 1608.
Lake (*Sapp*), 1639.
Hughes (*Sargent*), 1640.
Sawdon, 1696.
Lake (*Woods*), 1708.
Nussey, Pilling & Hall, 1720.
Willcox (*Willcox & Carleton*), 1744.
Livsey (*Merrick*), 1778.
Clements, 1933.
Galloway, 1958.
Clark (*Lathrop*), 1976.
Stockwell (*Howe Machine Co.*), 2030.
Lake (*Moreau & Isaacs*), 2055.
Winter, 2121.
Pilbeam, 2127.
Andrews, 2130.
Clark (*Lull*), 2162.
Mignot, 2236.
Talcott, 2239.
André, 2366.
Griffin (*Chadborn & Coldwell*), 2397.
Lake (*Jones & Lawrence*), 2426.
Lake (*Gassett*), 2439.
Jones, 2456.
Menke (*Braundbeck*), 2461.
Hunt (*Tate & Mitchell*), 2504.
Clark (*Gordon*), 2632.
Wilson, 2633.
Elliott, 2822.
Kallmeyer, 2827.
Wanner, 2833.
Lake (*Procopé & Stenman*), 2851.
Mills, 2899.
Pörtner (*Pollack*), 2932.

**Sewing, &c.—*cont.***
Galloway, 2958.
Gibson, 2961.
Blakey, 2978.
Lake (*Cramp*), 2984.
Mewburn (*Nicolai*), 2998.
Hobson, 3027.
Thompson, 3039.
Smyth, 3166.
Nussey, Pilling & Hall, 3172.
Anderson, 3206.
Lake (*Blake*), 3323.
Howse & Day, 3333.
Lake (*Wardwell, jun.*), 3343.
Winter, 3345.
Winter, 3420.
McElcheran, 3446.
Yeomans, 3471.
Mabson, 3495.

**Sewing buttons on cards for sale.** *See* "Buttons."

**Sewing cotton or thread:**
Unsworth, 1088.
Lister, 1116.
Keats, 1542.

**Shackles.** *See* "Chains."

**Shafting picks.** *See* "Pickaxes."

**Shafts and shafting:**
Lismann, 66.
Johnson (*Wheeler*), 388.
Haseltine (*Morrison*), 578.
Pollock, 623.
Tenwick, 626.
Booth (*Draper & Draper*), 737.
Mitchel, 758.
Johnson & Jones, 879.
Johnson (*Fish*), 897.
Robertson, 1528.
Munson (*Clark*), 1760.
Philpot (*Lucovich*), 1779.
Mills (*Lewis*), 1877.
Revell & Collin, 1992.
Newton (*Godfrey*), 2393.
Ellis, 2626.
Alexander, 2916.
Neale, 2950.
Watteeu (*Duterne*), 3168.
Spence (*Fensom*), 3239.
Berlet, 3336.
Zamoyski & Jackson, 3399.
Holmes & Taylor, 3427.
Leonardt (*Klosak*), 3470.
Hughes (*Kellogg*), 3473.

**Sharpening and filing saws:**
Durant (*Tucker & Snell*), 262.
Robertson, 1528.
Jackson, 2555.

**Shawls:**
Gibson, 2961.

**Shearing animals:**
Ward (*Sargeant*), 1060.
Wallen, 1197.
Holland, 1264.
Price & Thomas, 1424.
Marsden, 1981.
Smith (*Lengelée, Bouttier & Vincent*), 2363.
Drew, 2464.
Johnson (*Closson*), 2711.

**Sheathing bearings:**
Swan, 99.

**Sheep dips.** *See* "Dips for sheep."

**Shell and other projectiles.** *See* "Shot."

**Shields:**
Smith (*Broadwell*), 330.
Crosnier, 694.
Galloway, 1628.
Liardet, 2611.

**Ship and boat building:**

Preston, Prestige, Preston & Prestige, 96.
Snowdon, 97.
Moore, 181.
Roberts, 341.
Hanson, 402.
Balme & Crossley, 424.
Scott, 603.
Agerup (*Matthiesen, Castenskiold & Brasen*), 736.
Woore, 932.
Boyman, 944.
Newton (*Graham*), 1035.
Bourne (*Campell*), 1265.
Baker, 1317.
Newton (*Strange*), 1353.
Hayes, 1473.
Moody, 1547.
Johnson (*Warden*), 1578.
Galloway, 1628.
Brown, 1838.
Turnbull, 1878.
Galloway, 1958.
Macpherson, 2131.
Balme & Crossley, 2139.
Astley, 2242.
Saunders, 2270.
Newton (*Babbitt*), 2345.
Knowland & Smith, 2367.
Elliott, 2375.
Neilson, 2483.
Muratori, 2531.
Hay, 2855.
Symons, 2869.
Atkin, 2897.
Griffiths, 2991.
Lawson (*Goodwin & Sanford*), 3024.
Latour, 3063.
Betteley & Bremner, 3139.
Bridson, 3190.
Cook, 3347.
Tweddell, 3358.
Siebe, Gorman & Christy, jun., 3441.

**Ships' boats (lowering, raising and disengaging):**

Glover, 609.
Robson, 1146.
Campbell, 1678.
Glover, 2370.
Kilner, 2543.
Hill, 2935.
Johnson (*Grant*), 2944.

**Ships' bottoms (coating):**

Phalp, 301.
Berwick, 597.
Pout (*Rolls*), 745.
Crease, 1186.
Blair, 1486.
Griffiths, 1522.
Brown, 1838.
Clark (*Dubois*), 2222.
Wood (*Wood*), 2421.
Chapman, 2440.
Neilson, 2483.
Vivien & Vivien, 2823.

**Ships' cargoes (loading and unloading):**

Casebourne, 120.
Hopkinson, 1204.
Hopkinson, 1292.
Hulme, 2361.
Glover, 2370.
Wilde & Sinclair, 2442.
Lake (*Gould*), 2651.
Leigh, 3411.
Johnson (*Colton*), 3507.

**Ships' masts, spars and yards:**

Duncan, 62.
Hansen, 328.
Gurrin, 1091.
Lee & Rogers, 1597.
Galloway, 1958.
Munts, 2246.
Gurrin, 2766.
Desgoffe, 3170.

**Ships of war:**

Husband, 280.
Balme & Crossley, 424.
Woore, 932.
Boyman, 944.
Bourne (*Campell*), 1265.
English & Wilson, 1465.
Galloway, 1628.
Galloway, 1958.
Balme & Crossley, 2139.

**Ships' rigging:**

Liardet, 2013.

**Ships' sails:**

Savage, 391.
Elliott, 2520.
Clark (*Worthman*), 3463.

**Ships (stopping holes or leaks):**

McCool, 3169.
McCool, 3193.

**Shirts, collars, cuffs and wristbands:**

Taylor, 168.
Brown, 401.
Taylor (*Schneider*), 1288.
Pulvermacher, 1460.
Robertson, 1746.
Dick, 2779.
Onion, 2839.
Ball, 3305.
Kilpatrick & Cooke, 3394.
Jarvis, 3472.

**Shoeing horses.** *See* "Horseshoes."

**Shoes and slippers.** *See* "Boots."

**Shot, shell and other projectiles:**

Haseltine (*Allen*), 125.
Green, 503.
Britten, 715.
Sanders, 844.
Bessemer, 1466.
Duley & Marriott, 1979.
Brandon (*Hotchkiss*), 2296.
Tooth, 2454.

**Shovels.** *See* "Spades."

**Show cards:**

Perry (*Verster*), 1685.

**Shutters:**

Burr, 258.
Minns, 1516.
Gulliver, 1768.
MacCarthy, 2550.
Hughes, 2675.
Lecloux, 2842.
Neale, 2950.

**Shuttles used in sewing.** *See* "Sewing."

**Shuttles used in weaving.** *See* "Weaving."

**Sickles.** *See* "Reaping."

**Side walks.** *See* "Road making."

**Side weapons.** *See* "Bayonets."

**Sieves.** *See* "Sifting."

**Sifting, sorting, separating:**

Cameron, 15.
Green, 158.
Bannehr & Matthews, 556.
Boby, 676.
Bradley, 1075.
Lake (*Hooper*), 1096.
Page, 1122.
Ball, 1194.
Peverett, 1200.
Hull (*Johnson*), 1313.

**Sifting, &c.—*cont.***

Jones, jun. & Bell, 1477.
Pratt (*Farmer & Hatcher*), 1861.
Abraham (*Abraham*), 1911.
Behrns, 2304.
Briart, 2315.
Neilson, 2483.
Newton (*Grimaldi*), 2579.
Gedge (*Devillaine*), 2580.
Breckon & Joy, 2743.
Duffee, 2795.
Green, 2892.
Edlington & Edlington, 3433.
Johnson (*Browne & Hope*), 3508.

**Sights for fire-arms and ordnance.** *See* "Fire-arms."

**Sign boards, window signs, station and street indicators:**

Blanchett, 9.
Brock, 59.
Hodson, 2065.

**Signals, alarms and communicating apparatus:**

Welch, 3.
Blanchett, 9.
Kenyon, Kenyon & Entwistle, 14.
Marsh, 27.
Hodson & Hill, 31.
Little, 38.
Quin & Eastham, 44.
Ronchetti, 50.
Ronchetti, 51.
Harley, 68.
Haseltine (*Small*), 124.
Varley, 131.
Keirby, 140.
Thomlinson & Thomlinson, 183.
Wilson, 192.
Spagnoletti, 198.
Boyd (*Moulen*), 263.
Starnes, 266.
Tate, 310.
Samuel, 314.
Cochrane, 349.
Haseltine (*Watkins*), 373.
Wilson, 420.
Walsh, 553.
Lake (*Clemens*), 602.
Hargreaves & Rostron, 618.
King, 629.
Holmes, 674.
Allibon & Walsh, 693.
Wigham, 729.
Stoner, 731.
Kendall, 738.
Gisborne, 752.
Daws, 765.
Gisborne, 773.
Baines, 779.
Swan, 795.
Thomson, 810.
Price, 843.
Sims & Yockney, 872.
Brydon & Kendall, 884.
Bagshaw, 973.
Duxbury, 988.
Sleigh, 1054.
Bull, 1094.
Harman & Mills, 1112.
Entwistle & Raw, 1236.
Bartholomew, 1238.
Kirk, 1286.
Richardson, 1291.
Sperati (*Guattari*), 1346.
Mitchell & Mayo, 1383.
Hickman, 1437.
Elsner, 1443.
Fisher, 1500.
Lake (*Myers*), 1509.
Cowburn, 1546.
Hamilton & Sax, 1574.
Saxby, 1601.
Walcker, 1632.
Saxby, 1655.
Lyttle, 1657.
Tallent, 1831.
Mills (*Thiers*), 1883.
Morris & Edwards, 1890.
Irvine, 1896.
Silber & White, 2007.

Signals, &c.—*cont.*
Haskell, 2049.
Hodson, 2065.
McHardy, 2071.
Dutton, 2098.
Lake (*Hall & Van Blercom*), 2150.
Gedge (*Le Bret*), 2171.
Clark (*Robinson*), 2280.
Vagnolini, 2336.
Miller, 2405.
Clark & Muirhead, jun., 2418.
Veillet & Verny, 2441.
Manier, 2448.
Miles, 2472.
Lowman, 2508.
Wier, 2585.
Davis, 2595.
Varley & Varley, 2596.
Westinghouse, jun., 2684.
Stevens, 2713.
Zanni, 2721.
Moorhouse & Kendall, 2727.
Granville, 2758.
Calvert, 2777.
Henley & Horstman, 2800.
Steele, 2817.
Broughton, 2838.
Jaynor & Smith, 2976.
Cornwall, 2987.
Haseltine (*Rowell & Duncan*), 3108.
Desgoffe, 3170.
King, 3171.
Read & Nickoll, 3268.
Holten, 3309.
Singleton, 3312.
Wigham, 3326.
Webb, 3329.
Oggioni, 3330.
Entwistle, 3355.
Newton (*Otis & Otis*), 3430.

Silica:
Riddell, 923.
Doble, 1077.

Silk reels for dressing flour. *See* "Grinding corn."

Silos:
Spencer, 993.

Silvering or laying silver powders on fabrics. *See* "Bronzing."

Singeing fabrics and yarns. *See* "Finishing."

Sinks:
Jennings, 229.
Newton (*Graham*), 1035.
Jennings, 1341.
Hunt (*Gordon*), 1348.
Wilson, 1749.
Mann, 2755.
Gunn, 3246.
Anderson, 3455.

Size:
Dewar, 778.
Riddell, 923.
Clark (*Rice & Driggs*), 1009.
Collins, 1840.
Casthelaz & Depoully, 1879.

Sizing, dressing and gumming yarns:
Lancaster, 462.
Hadfield, 659.
Knowles, 894.
Cocker, 977.
Whitehead, 1113.
Dickinson & Parkinson, 1414.
Harrison, 1775.
Shaw & Shaw, 1826.
Casthelaz & Depoully, 1879.
Abbott, 2967.

Skates:
Simpson, 147.
Badham, 414.
Ritchie, 442.
Wheble, 2704.

Skimming milk. *See* "Milk."

Skins and hides. *See* "Leather."

Skirts. *See* "Dresses."

Skylights. *See* "Windows."

Slabbing iron. *See* "Metals."

Slag used for building blocks. *See* "Bricks."

Slate. *See* "Stone."

Slaughter houses:
Cochrane, 520.
Meiklejon, 1402.
Norton, 3198.

Sleepers for railway rails. *See* "Railways (permanent)."

Sleeve links. *See* "Jewellery."

Slop pails. *See* "Pails."

Sluices:
Slater, 461.
Tylor, 685.
Martin, 1318.
Brodie, 1957.

Smallware looms. *See* "Weaving narrow fabrics."

Smoke prevention; burning and consuming smoke:
Gaukroger & Handley, 34.
MacKean, 45.
Ritchie, 185.
Boyle, 221.
Heginbottom, 304.
Girdwood, 307.
Mines & Evans, 387.
Jobson, 453.
Crichley, 478.
Rennie, 541.
Sykes & Stokes, 658.
Edwards, 672.
Wilson, 717.
Kent, 813.
Lake (*Peters*), 933.
Kenworthy & Johnstone, 1127.
Mines, 1140.
Crighton, 1145.
Hydes & Bennett, 1161.
Blunn & Wild, 1504.
Huntly, 1536.
Poupard & Thomson, 1609.
Butterworth & Howarth, 1636.
Sinclair, 1666.
Long, 1709.
Jordan, 1719.
Hinchliffe, 1753.
Dormoy, 1967.
Adams, 2198.
Webber, 2250.
Newton (*Pike*), 2356.
Smith & Leech, 2373.
White, 2540.
Lake (*Potter*), 2599.
Davies & Eckersley, 2629.
Sidebottom, 2636.
Robinson, 2658.
Buckley, Messrs., 2824.
Whitelaw, 2840.
Roberts, Armitage & Haley, 2917.
Papier, 2941.
Hinchcliffe & Milnes, 3097.
Dilnutt & Knowelden, 3101.
Roberts, 3148.
Taylor, 3260.
Ebdy, 3297.
Johnson (*Westerman*), 3423.
Fern, 3424.

Smoking apparatus. *See* "Tobacco."

Smoothing irons. *See* "Ironing."

Snatch blocks. *See* "Pulleys."

Snuff. *See* "Tobacco."

Soap:
Lorberg, 245.
Douglas, 507.
Scharr, 701.
Riddell, 923.
Granger & Hyan, 1381.
Smith (*Du Motay*), 1725.
Fenton, 1897.
Lorberg, 1978.
Symons (*Dotch*), 2923.
Leetch, 3244.

Soap dishes and holders:
Schlesinger (*Dixon*), 1739.

Soda. *See* "Alkalies."

Sodium, potassium and their salts:
Larkin & White, 23.
Sonstadt, 105.
Gibb & Gelstharp, 624.
Anderson, 718.
Claudet, 904.
Anderson, 2134.
Anderson, 2216.
Anderson, 3493.

Solidifying oils. *See* "Oils."

Solitaires. *See* "Jewellery."

Sorting and separating. *See* "Sifting."

Soups:
Lake (*Scheller*), 309.
Drouyer, 1097.
Craig, 1956.
De La Peyrouse, 2260.
Henley, 3188.

Sowing seed; distributing manure:
Randall, 281.
Cox, 441.
Sams, 449.
Priest & Woolnough, 486.
Wright, 667.
Wheaton & Besley, 722.
Hornsby & Phillips, 982.
King, 1248.
Nicholls, 1447.
Wright, 1561.
Macintosh (*Comstock*), 1637.
Giles (*Spratt*), 1672.
Harrison, 1814.
Brown, 1940.
Pearson (*Seward*), 2111.
Taylor, 2302.
Edwards, 2904.
Willoughby & Willoughby, 3132.
Reeves, 3278.

Spades, shovels and forks:
Wetmore, 100.
Jackson, 513.
Sanders, 837.
Tottenham, 946.
Giles (*Spratt*), 1672.
Newton (*Alsip*), 2026.
Hardy & Stayner, 2527.
Clark (*Wickes*), 2700.
Gedge (*Dérégnaucourt*), 3122.

Spanners. *See* "Wrenches."

Spark arresters:
Johnson (*Smith & Worsdell*), 1646.
Bouch, 1773.
Newton (*Pike*), 2356.

Specific gravity:
Davis, Ilbery, Isangk & Sullivan, 1680.

Spectacles or eye glasses:
Haseltine (*Leggo*), 471.
Willson, 1772.
Johnson (*Derogy*), 1852.

**Spermaceti.** *See* "Oils (animal)."

**Spices (reducing to small particles):**
Hancock & Hancock, 3353.

**Spikes.** *See* "Nails."

**Spindles; spindles and flyers:**
Wilkes, 202.
Buller, 211.
Lake (*Mayor & Chatterton*), 362.
Moscrop, 493.
Booth (*Draper & Draper*), 737.
Mitchel, 758.
Christoffers, 878.
Gulliver, 1768.
Walker, 1823.
Harrison, 1900.
Revell & Collin, 1992.
Borland, 2221.
Underwood & Thomson, 2463.
Arnold & Barraclough, 3012.
Hughes (*Kellogg*), 3473.

**Spinning, twisting, doubling and throwing fibrous materials:**
Richards, 239.
Holden, 272.
Curtis & Greasley, 303.
Dew, 337.
Lake (*Mayor & Chatterton*), 362.
Jagger, 363.
Rushton & Tonge, 375.
Hebden, 382.
Taylor, 406.
Tullis, 485.
Moscrop, 493.
Turner, 579.
Lord, Lord & Fenton, 709.
Booth (*Draper & Draper*), 737.
Wilkinson, 868.
Asquith & Greenwood, 947.
Parker & Greenwood, 1062.
Unsworth, 1088.
Norris & Seed, 1093.
Harrison, Messrs., 1111.
Lister, 1116.
Knowles & Hetherington, 1130.
Law & Crossley, 1191.
Woodhouse & Chaffer, 1222.
Brocklehurst, 1261.
Dickinson, 1262.
Seed, 1483.
Keats, 1542.
Stell, 1596.
Mullin, 1615.
Payne & Newton, 1656.
Bazin, 1668.
Bottomley, 1670.
Parker & Greenwood, 1679.
Metcalf & Gibbons, 1687.
Rawcliffe, jun., Bibby & Fleming, 1731.
Swift, 1751.
McGlashan, 1887.
Revell & Collin, 1992.
Dobson & Macqueen, 2037.
Parnacott, 2057.
Curtis & Rhodes, 2154.
Macken (*Spineux*), 2163.
Wilson, 2201.
Newton (*Good*), 2211.
Borland, 2221.
Lake (*Avery*), 2284.
Dreyscharff, 2337.
Pearson & Rumney, 2400.
Clark (*Williams, Williams & Douglass*), 2414.
Underwood & Thomson, 2463.
Pittman, 2634.
Johnson (*Morgan & McMullan*), 2853.
Clark (*Lavater & Michel*), 2910.
Blamires, 2924.
Reuss, 3035.
Latour, 3063.
Ryder, 3079.
Tongue (*Meynier*), 3126.
Tweedale, 3272.
Unsworth, 3316.
Tatham, 3481.
Moffatt, 3528.

**Spinning (carding, combing and heckling fibrous materials):**
Nasmith, 48.
Crowther, 110.
Walker, 170.
Whitehead, 195.
Whitehead & Ackroyd, 213.
Knowles & Hetherington, 228.
Lake (*Weiler*), 246.
Curtis & Greasley, 303.
Whitehead, 480.
Parkinson & Lord, 613.
King, 629.
Soutar, 647.
Blamires & Marsden, 705.
Lowry, 712.
Bonneville (*Martin*), 721.
Tatham, 768.
Horner, 782.
Thornton, 829.
Thornton & Wear, 831.
Smith, Messrs. & Bradley, 902.
Bailey, 938.
Horsfall, 951.
Lawson, 1014.
Brooke, 1118.
Bell & Bell, 1120.
Knowles & Hetherington, 1130.
Emmott, 1134.
Walker, 1151.
Woodhouse & Chaffer, 1222.
Fairburn, 1237.
Little & Eastwood, 1297.
Walker, 1413.
Barker, 1434.
Bottomley & Haggis, 1515.
Tetley & Smith, 1604.
Foster, jun., 1623.
Crofts, Dawson & King, 1683.
Priest & Priest, 1791.
Smith, Messrs., & Bradley, 1865.
Wilkinson, 1874.
Mason, jun., & Dawson, 1948.
Smith (*Bourau*), 1966.
Beard, 1986.
Dobson & Macqueen, 2037.
Clissold, 2072.
Knowles, jun., 2108.
Curtis & Rhodes, 2154.
Newton (*Good*), 2211.
Newton (*Hayem*), 2271.
Barber, Barber & Baines, 2377.
Dronsfield, 2474.
Eastwood, 2518.
Pittman, 2634.
Cotton, 2669.
Wise (*Bede & Co.*), 2702.
Newton (*Bosson*), 2851.
Edwards, 2962.
Latour, 3063.
Kochs, 3076.
Kay, 3121.
Oates & Jones, 3381.
Elce & Macpherson, 3425.
Tatham, 3481.
Goodwin, 3516.

**Spinning (opening, ginning and cleaning fibrous materials):**
Hodgkin & Brasier, 92.
Whitehead, 196.
Gibbs, 256.
Macarthur (*Jones*), 415.
Gordon (*Forbes*), 431.
Duff, 519.
Dickson, 710.
Seddon, 716.
Crighton & Crighton, 1045.
Abel (*Henderson*), 1331.
Curtis (*Palmer*), 1410.
Barker, 1434.
Wilson, 1625.
Demailly, 1863.
Wilkinson, 1874.
Whitehead, 2042.
Jones, 2181.
Westlake & Thompson, 2187.
Fleming, Maclagan & Irvine, 2196.
Varley & Varley, 2386.
Brasier, 2388.
Pittman, 2634.
Demailly, 2635.
Rydill, 2807.

**Spinning, &c.—*cont.***
Wilkinson, 3000.
Death & Ellwood, 3120.
Webb, 3212.
Newton (*Cornut*), 3321.
Greaves (*Cotton*), 3596.

**Spinning or twisting wire ropes:**
Eyton, 812.
Mallock, 1792.
Moffatt, 3528.

**Spinning ropes.** *See* "Ropes."

**Spinning tobacco.** *See* "Tobacco."

**Spittoons or cuspadores:**
Heath, 1858.
Brown, 3354.

**Sponge; sponge dredging:**
Gedge (*Pavel*), 2490.
Parlour, 2664.
Taylor, 3258.

**Sponge bags.** *See* "Bags."

**Spools.** *See* "Bobbins."

**Spoons:**
Haseltine (*De Busson*), 126.
Maxfield & Maxfield, 558.

**Spray producers:**
Barraclough, 495.
Cocker, 977.
Hughes (*Hughes*), 1230.
Agnellet, 1499.
Prosser, 2438.
Fern, 3424.

**Springs:**
Haseltine (*Sperry*), 235.
Gardner, Lowe, Wood, Wood & Pickering, 276.
Gardner, Lowe, Wood, Wood & Pickering, 1249.
Paget (*Lemoine*), 1257.
Samuels, 1569.
Moffatt, 1611.
Taylor, 1649.
Bethune, 1693.
Hughes (*Peck*), 1732.
Clark (*Lull*), 2162.
Knowland & Smith, 2367.
Lake (*Hershey, Geer, Dudley & Gaggin*), 2467.
Taylor, 2473.
Lichtscheindl (*Crandall*), 2690.
Trevithick, 2977.
Simon (*Egan*), 3141.
Hughes (*Coit*), 3313.
Vericchio, 3356.
Le Harivel, 3418.
Wood, 3419.
Holmes & Taylor, 3427.

**Sprinkling:**
Stocker, 1149.
Target, 1847.
Williamson & Glazier, 2497.
Macfarlane (*Van Wagner*), 3246.

**Squirrel cages:**
Ford, 408.

**Stables; cattle sheds:**
Cochrane, 520.
Galloway, 1628.
Bessemer, 1737.
Norton, 1938.
Norton, 2627.
Brannon, 2703.
Holmes, 3015.
Norton, 3198.
Austin & Ellis, 3219.

**Stacking hay, straw, &c.:**
Wallis & Steevens, 698.
Tasker, jun., 725.
Wallis & Steevens, 1267.
Walker, 1818.
Horsell, 2947.

**Stage "armour."** *See* "Theatrical costumes, &c."

**Staining or colouring.** *See* "Colouring."

**Stair cloths.** *See* "Floor cloths."

**Stair treads and rods:**
Norton, 1938.
Norton, 2627.
Hughes, 2675.
Mills (*Marston & Brooks*), 3265.

**Stamp receptacles:**
Apperly, 2549.
Ricketts 3163.

**Stamping machines:**
Barrett & Wright, 1562.
Darlington, 2657.
Tower (*Tower*), 2956.
Barrett & Wright, 3374.
Hammond (*Jullien*), 3392.

**Stamping or shaping articles in metal:**
Lake (*Dyer*), 1510.
Priqueler, 2255.

**Stamping ores.** *See* "Grinding ores."

**Stamps, labels and tickets; damping and cancelling stamps, &c.**
Paterson, 42.
Avery, 101.
Haseltine (*Small*), 124.
Millar, 371.
Gooding, 978.
Ellis & Aubertin, jun., 1213.
Avery, 1322.
Templeton, 1592.
Perry (*Verster*), 1685.
Clark (*Tyrrell*), 2161.
Lewis, 2468.
Flack, 2898.

**Stand and water posts:**
Morris, jun., 484.
Hosken & Fleury, 2047.
Johnson (*Denans*), 3153.

**Stannate of soda and potash.** *See* "Alkalies."

**Starch and dextrine:**
Young, 248.
Biddell, 923.
Newton (*Fitts*), 2146.

**Starting machinery; throwing into gear:**
Leask, 127.
Salmon, 695.
Mills (*Goodyear, jun.*), 937.
Redpath, 994.
Harrison, Messrs., 1111.
Brown, 2253.
Brown, 2529.
Redpath, 2729.
Mewburn (*Nicolai*), 2998.
Weir, 3096.
Abel (*Heald, Morris & Sisco*), 3189.
Bentall, 3307.
Lafferty & Lafferty, 3322.
Bollé, 3415.
Holmes & Taylor, 3427.

**Station indicators.** *See* "Sign boards."

**Stationery cases:**
Ricketts, 3163.

**Statuary.** *See* "Sculpture."

**Stays, corsets, bodices and busks:**
Minns, 438.
Freeman, 882.
Thomas, 1065.
Lake (*Dyer*), 1520.
Kuttner, 1875.
Brewer (*Edard & Basault*), 1947.
MacCarthy, 2550.
Thomas, 3010.
Thomas, 3222.
Cocking, 3283.
Hall, 3314.
Lane, 3351.

**Steam (separating water from; preventing priming):**
Oram, 1183.
Long, 1552.
Shepherd, 2533.
Stockley & Stainton, 2666.
Crane & Moir, 3055.

**Steam-boiler furnaces.** *See* "Furnaces."

**Steam-boiler gauges.** *See* "Gauges."

**Steam-boilers and generators; generating and superheating steam:**
Fell, 1.
Fernley, 12.
Mack, 29.
Norton & Davies, 36.
Lismann, 66.
Allen, 85.
Snowdon, 97.
Newton (*Lorillard*), 212.
Jeffery & Luke, 260.
Clark (*Ellis*), 261.
Heginbottom, 304.
Girdwood, 307.
Wilke & Esplen, 342.
Adamson, 344.
Dawson (*Dawson*), 381.
Jennings, 400.
Hanson, 402.
Pilkington, 421.
Balme & Crossley, 424.
Glaskin, 492.
Jones & Hacking, 521.
Snowden & Moffat, 525.
Boyd, 559.
Cotterill & Biddle, 572.
Birchall, 641.
Brough & Mace, 643.
Kaeuffer, 644.
Barclay, 673.
Pendred, 679.
Salmon, 695.
Winstanley, 730.
Munro, 822.
Phillips & Hacking, 823.
Boulton, 874.
Birchall, 898.
Birchall, 899.
Lake (*Woodson*), 910.
Atkins, 934.
Field & Olrick, 1043.
Ashton, 1063.
Todd, 1110.
Crighton, 1145.
Howard & Bousfield, 1163.
Oram, 1183.
Bolton, 1231.
Fell, 1246.
Kirk, 1286.
Dawes, 1321.
Vansteenkiste & Barbe, 1401.
Tongue, 1478.
Wilde, 1511.
Cowburn, 1546.
Long, 1552.
Moorhouse, 1620.
Galloway, 1628.
Johnson (*Smith & Worsdell*), 1646.
Lake (*Bartlett*), 1796.
Perkins, 1822.
Mirchin, 1952.
Davidson, 1962.
Chrystal, 1975.
Tongue (*De Laharpe & Fouché*), 2006.
Everitt, 2020.

**Steam-boilers, &c.—*cont.***
Barclay, 2076.
Balme & Crossley, 2139.
Adams, 2198.
Watson & Andrews, 2223.
Johnson (*Collingridge & Stephen*), 2261.
Edge, 2268.
Goulding, 2381.
Newton (*Martin*), 2425.
Taylor, 2473.
Gedge (*Gaudefroy*), 2545.
Lees, 2565.
Tinn, 2576.
Clark (*Petitpierre*), 2616.
Hunt (*Stone*), 2652.
Stockley & Stainton, 2666.
Clark, 2688.
Clark (*Wickes*), 2700.
Butterworth & Heap, 2712.
Randolph, 2737.
Crosland, 2749.
Moy & Shill, 2762.
Perkins, 2819.
Sugg, 2844.
Kochs, 2939.
Jordan, 2969.
Heywood & Whewell, 2993.
Watt, 3011.
Crane & Moir, 3055.
Mitchell & Mitchell, 3071.
Dodge, 3147.
Newton (*Jouet-Pastré*), 3187.
Moore, 3215.
Silber & White, 3254.
Tweddell, 3358.
Johnson (*Westerman*), 3423.
Webb, 3442.
McKechnie, 3523.

**Steam-boilers (cleansing and preventing incrustation of):**
Harris, 123.
Lockwood, 376.
Galloway, 583.
Kaeuffer, 644.
Field, 870.
Lake (*Woodson*), 910.
Ashton, 1063.
Howard & Bousfield, 1163.
Oram, 1183.
Lake (*Perkins*), 1323.
Vansteenkiste & Barbe, 1401.
Long, 1552.
Zipser, 1868.
Mirchin, 1952.
Baldwin, 2327.
Newton (*Godfrey*), 2393.
Clark, 2688.
Perkins, 2819.
Chaudet, 2871.
Mundy, 2876.
Mitchell & Mitchell, 3071.
Touaillon (*Vigier*), 3328.

**Steam-boilers (water feeding and heating):**
Norton & Davies, 36.
Sharp, 159.
Clark (*Ellis*), 261.
Graddon, 384.
Budenberg (*Mühlrad*), 454.
Kaeuffer, 644.
Robinson, 700.
Butler, 726.
Munro, 822.
Lake (*Woodson*), 910.
Lake (*Winkler & Zitowitsch*), 943.
Greig & Eyth, 980.
Cox, 1053.
Körting, 1055.
Hughes (*Hughes*), 1230.
Grindrod, 1293.
Welch, 1423.
De Bergue (*Dalmau y Sala*), 1551.
Long, 1552.
Philpot (*Lucovich*), 1779.
Newton (*Wright*), 1850.
Weir (*Weir*), 1936.
Davidson, 1962.
Virollet (*Duché*), 1988.
Tongue (*De Laharpe & Fouché*), 2006.

**Steam-boilers, &c.—*cont.***
Jochumsen, 2207.
Johnson (*Berryman*), 2218.
Wallis & Steevens, 2537.
Friedmann, 2750.
Jackson, 2812.
Mundy, 2876.
Webb, 2884.
Selden, 2967.
Webb, 2985.
Mitchell & Mitchell, 3071.
Sutcliffe, 3179.
Parsell, 3207.
Körting, 3225.
Newton (*Hauzeur*), 3228.

**Steam-carriages:**
Todd, 1110.
Griffin, 1736.
Grantham, 1991.
Gowans, 2643.
Randolph, 2737.
Moy & Shill, 2762.
Sands, 3099.

**Steam-engines (stationary, locomotive and marine):**
Fell, 1.
Horrocks (*Horrocks*), 117.
Warsop, 150.
Boehringer & Krall, 214.
Galloway & Beckwith, 247.
Jeffery & Luke, 260.
Davey, 277.
Girdwood, 307.
Ommanney & Routledge, 361.
Ridsdale, 370.
Dawson (*Dawson*), 381.
Graddon, 383.
Johnson (*Wheeler*), 388.
Wilson, 419.
Franklin & Franklin, 457.
Slater, 461.
Armour (*Lamm*), 517.
Guthrie & Stevenson, 531.
Marchant, 546.
Rockliff, 571.
Hargreaves & Rostron, 618.
Dodds, 627.
Sutherland, 640.
Vosper, 642.
Murphy, 646.
Inglis & Spencer, 651.
Corlett, 670.
Feldtmann (*Gehrckens*), 692.
Salmon, 695.
Winstanley, 780.
Fairlie, 803.
King, 824.
Lake (*Cameron*), 838.
Welch, 840.
Dunlop, 852.
Robson, 900.
Johnson (*Schmid*), 906.
Newton (*Nolet*), 1034.
Clark (*Harrod*), 1076.
Welch, 1169.
Morgan-Brown (*Goulding*), 1199.
Anderson, 1242.
Fell, 1246.
Day (*Campbell & Clark*), 1259.
Bennett, 1273.
Dawes, 1321.
Lake (*Brandt, Lehr, Fisher & Brecht*), 1327.
Hopkinson, jun., 1358.
Chappé, 1395.
Towle (*Babcock*), 1418.
Lindsay, 1436.
Taylor & Cooke, 1513.
Greig & Daniel, 1599.
Day, 1627.
Hughes (*Sigl*), 1641.
Hunt (*Adams*), 1659.
Melling, 1681.
Griffin, 1736.
Ramsbottom, 1740.
Bouch, 1773.
Whitwell, 1797.
Shive, 1803.
Perkins, 1822.
Newton (*Wright*), 1850.

**Steam-engines, &c.—*cont.***
Cartwright, 1872.
Vaughan, 1876.
Mills (*Lewis*), 1882.
Weir (*Weir*), 1936.
Marchant, 1949.
Budenberg (*Buss*), 1954.
Clayton & Shuttleworth, 2001.
Watkin, 2029.
Newton (*Molard*), 2091.
Widmark, 2093.
Guinotte, 2094.
Giles, 2137.
Abel (*Messrs. Rousseau*), 2229.
Brown, 2253.
Hughes (*Windhausen*), 2355.
Zamoyski & Jackson, 2372.
Fletcher, 2383.
Barlow, 2401.
Lake (*Brown*), 2417.
Furness, 2437.
Neilson, 2483.
Hughes (*Harper*), 2494.
Smith, 2507.
Haines, 2515.
Brown, 2529.
Gedge (*Gaudefroy*), 2545.
Kinsey, 2614.
Darlington, 2657.
Stockley & Stainton, 2666.
Fairlie, 2725.
Randolph, 2737.
Moy & Shill, 2762.
Lake (*Wiegand*), 2793.
Petrie, 2813.
Perkins, 2818.
Perkins, 2819.
Clark (*Herrmann*), 2852.
Webb, 2884.
Alison, 2900.
Langshaw, 2919.
Cameron, 2930.
Trevithick, 2977.
Okes, 2980.
Hobson, 3027.
Archer, jun., & Hall, 3046.
Crane & Moir, 3055.
Clarkson, 3061.
Garrett & Sons (*Kotzo*), 3084.
Weir, 3096.
Sands, 3099.
Hughes, 3129.
Dodge, 3147.
Smith (*Messrs. Tiranoff & Kousakoff*), 3164.
Parsell, 3207.
Körting, 3225.
Smith, 3240.
Clark (*Leblond & Mulot*), 3277.
Lake (*Schwartz*), 3292.
Simpson & Gardner, 3304.
Marshall & Harding, 3337.
Pinkus, 3359.
Webb, 3442.
Gwynne & Beale, 3449.
Abel (*Rycx*), 3452.
Newton (*Radinger*), 3462.
Wightman, 3487.

**Steam gauges.** *See* "Gauges."

**Steam generators for destroying vermin, &c.:**
Tongue, 1478.

**Steam greasers.** *See* "Oiling."

**Steam hammers.** *See* "Hammers."

**Steam pumps.** *See* "Pumps."

**Steam road rollers.** *See* "Road making."

**Steam traction engines.** *See* "Traction engines."

**Steam traps.** *See* "Valves."

**Steam winches.** *See* "Hoists."

**Steaming cloth:**
Lake (*Hiery*), 2152.
Abel (*Grison*), 2362.

**Stearine:**
Toepler, 1052.
Wilson (*Berdan*), 1425.
Fenton, 1897.
Fortoul, 3249.

**Steering or guiding ships, carriages, ploughs, &c.:**
Snowdon, 97.
Casebourne, 120.
Corbett, 135.
Foulger, 136.
Wilson, 154.
Norman, 218.
Randall, 281.
Taylor & Adams, 355.
Angell, 390.
Pilkington, 421.
Sams, 449.
Atkinson, 481.
Gore, 501.
Aveling, 509.
Fisken, 554.
Johnson, 617.
Kittoe & Brotherhood, 648.
Davis, 891.
Hornsby & Phillips, 982.
Murray, 1153.
Skinner, 1170.
Reid, 1220.
Fisken, 1330.
Jefferies, 1350.
Lake (*Pratt*), 1375.
Noble & Grout, 1468.
Coleman & Morton, 1630.
Mackinder & Johnson, 1664.
Reid, 1711.
Dewar, 1758.
Greig & Burton, 1782.
Rainforth, 1898.
Galloway, 1958.
Gilbert, 2104.
Brown, 2253.
Haseltine (*Leggo*), 2254.
Saunders, 2270.
Thomson, 2409.
Howard, 2424.
Brown, 2529.
Randolph, 2737.
Perkins, 2818.
Howard, 2896.
Winder, 2922.
Cameron, 2930.
Griffiths, 2991.
Kirk, 3064.
Betteley & Bremner, 3139.

**Stereotype plates (mounting).** *See* "Printing."

**Stilettoes.** *See* "Daggers."

**Stillages:**
Walker & Robinson, 798.
Bradbury & Whittaker, 976.

**Stirring.** *See* "Mixing."

**Stockings and socks:**
Christoffers, 878.
Redpath, 994.
Pulvermacher, 1460.
Sparrow, 1819.
Gedge (*Benoit, Peyron & Germain, jun.*), 1909.
Redpath, 2729.
Onion, 2839.
Woodward, 3009.
Cooley, 3054.
Lamb & Lowe, 3068.
Davies, 3469.
Woodward, 3480.

**Stone, slate and marble; millstones and grindstones:**
Hay, 320.
Benson (*Gardner & Turrell*), 332.
Ball, 445.
Thomas, 473.
Stiles & Elsdon, 500.
Smith, 506.
Cochrane, 520.

**Stone, &c.—*cont.***
Newall, 599.
Thompson, 713.
Pout (*Rolle*), 745.
Porter, 802.
Lake (*Gloister*), 1074.
Lambert, 1124.
Bird, 1193.
Rowe, 1206.
Bloomfield, 1332.
Clark (*Havemeyer*), 1352.
Oliver, 1394.
Newton (*Baxter*), 1462.
Rothery & Rothery, 1471.
Dowson & Dowson, 1488.
Robertson, 1528.
Cowper, 1612.
Skinner, 1795.
Croskey (*McKinley*), 1842.
Bowyer, 1885.
Aitken, 1886.
Holmes, 2000.
Munro & Adamson, 2084.
Childs & Childs (*Fry*), 2105.
Goodman, 2114.
Cochrane, 2120.
Douglas & Watson, 2158.
Sturgeon, 2185.
Emmens, 2188.
Lake (*Rider*), 2191.
Dann (*Ahrens*), 2237.
Ransome (*Kripe*), 2293.
Behrns, 2304.
Cunningham, 2320.
Zengeler, 2325.
Patterson & Patterson, 2354.
Neilson, 2483.
Davey, 2563.
Gowans, 2644.
Darlington, 2657.
Brannon, 2703.
Holmes (*Emerson*), 2706.
Thompson, 2802.
Lake (*Young & Young*), 3256.
Haseltine (*Shelley & Bullock*), 3270.

**Stone breakers:**
Goodman, 358.
Newall, 599.
Johnson (*Browne & Hope*), 741.
Tregay, 905.
Ord & Maddison, 1652.
Marsden, 1760.
Goodman, 2114.
Lake (*Rider*), 2191.
Lake (*Webster & Hall*), 3349.
Johnson (*Browne & Hope*), 3508.

**Stop motions; throwing out of gear:**
Roberts & Shaw, 172.
Richards, 239.
Mitchell, 665.
Hodgson & Broadley, 751.
Eyton, 812.
Briggs, Willan & Lewis, 914.
Hughes (*Snoeck*), 920.
Redpath, 994.
Hughes (*Hughes*), 1032.
Bradley, 1075.
Heyes & Entwistle (*Cummings*), 1119.
Isherwood, 1123.
Craik & Balshaw, 1253.
Stell, 1596.
Tetley & Smith, 1604.
Wilson (*Wilson & Hunter*), 1912.
Stodart, 1913.
Bremner, 1989.
Unsworth & Whalley, 2077.
Wilson, 2201.
Brown, 2253.
Taylor, Clegg & Taylor, 2577.
Hughes (*Snoeck*), 2581.
Walker, 2674.
Redpath, 2729.
Johnson (*Morgan & McMullan*), 2853.
Neale, 2950.
Abbott, 2957.
Mewburn (*Nicolai*), 2998.
Ryder, 3079.
Lake (*Pease*), 3103.

**Stop motions, &c.—*cont.***
Nussey & Leachman, 3230.
Bentall, 3307.
Lafferty & Lafferty, 3322.
Bollé, 3415.
Brimelow, 3426.
Newton (*Otis & Otis*), 3430.
Tatham, 3481.
Johnson (*Colton*), 3507.
Moffatt, 3528.

**Stoppers for bottles.** *See* "Bottle stoppers."

**Stoppers for jars.** *See* "Jars."

**Stopping trains.** *See* "Breaks for carriages."

**Store houses for agricultural implements, &c.:**
Cochrane, 520.
Carpenter, 1279.

**Stove cover lifters:**
Lake (*Garrick*), 2699.

**Stoves.** *See* "Fire-places."

**Strainer plates for paper making.** *See* "Paper."

**Strainers or envelopes:**
Nutt & Selby, 71.
Bolton, 678.
Laycock, 1310.
Clark (*Dervieux*), 1396.

**Straps for trousers and vests:**
Wilson, 534.
Brough, 1343.

**Straps (leather):**
Mignot, 2236.
Colnot, 3100.
Hall, 3106.

**Straps or bands for driving machinery.** *See* "Bands."

**Strawberry runner cutters.** *See* "Horticulture."

**Street and station indicators.** *See* "Sign boards."

**Stretchers.** *See* "Invalid carriages."

**Studs.** "*See* Buttons."

**Studs for sharpening horse-shoes.** *See* "Horse-shoes."

**Stuffing-boxes.** *See* "Axles."

**Styptics.** *See* "Medicines."

**Subsoiling.** *See* "Ploughing."

**Suction hose.** *See* "Pipes."

**Sugar (reducing to small particles):**
Hancock & Hancock, 3353.

**Sugar and syrups:**
Campbell & Appleby (*Leplay*), 2.
Moore (*Spreckles*), 575.
Gerken, 656.
Gedge (*Parts*), 849.
Newton (*Gloag*), 856.
Rock, 876.
Hughes (*Weinrich & Schroder*), 1185.
Garton, 1232.
Duncan & Stenhouse, 1235.
Wilson (*Lair & Bilange*), 1314.
Granger & Hyan, 1381.
Day (*Bender*), 1386.

**Sugar and syrups—*cont.***
Dawlings (*Brough & Gilson*), 1406.
Duncan & Stenhouse, 1619.
Brough & Fletcher, jun., 1777.
Abraham (*Abraham*), 1911.
Duncan, Newlands & Newlands, 2090.
Paterson (*Drummond*), 2202.
Campbell (*Campbell*), 2285.
Platt, 2427.
Neilson, 2483.
Clark (*Tamin*), 2631.
Danchell, 2903.
Clark (*Blanchard, Bang & Provost*), 2983.
Lagrange, 3180.
Robertson, 3232.
Lafferty & Lafferty, 3322.
Hepworth, 3375.

**Sugar mills:**
Smith (*Rousselot*), 790.
Clark (*Squier & Squier*), 892.
Norman (*Hutchinson*), 913.
Hughes (*Hughes*), 1032.
Watson, 1606.
Hughes (*Hughes*), 1931.
Stewart, 3269.

**Sulphide of hydrogen:**
Hargreaves & Robinson, 1920.

**Sulphites:**
Heyl, 2786.

**Sulphur:**
Anderson, 718.
Jackson, 972.
Doble, 1077.
Spence (*Perret, Bros. & Olivier*), 1807.
Hargreaves & Robinson, 1923.
Hargreaves & Robinson, 1928.
Weldon, 2008.
Weldon, 2169.
Anderson, 2216.
Mactear, 2374.
Hall, Gibb & Gelstharp, 3143.

**Sun blinds.** *See* "Window blinds."

**Sun pictures.** *See* "Photography."

**Sun shades.** *See* "Umbrellas."

**Sunken vessels (removing):**
Briggs, 1584.

**Surf boats.** *See* "Ship-building."

**Surgical bandages, splints, stockings, &c.:**
Cocking, 2295.
Cocking, 2353.
Gedge (*Pavel*), 2490.
Gurrin, 2766.
Townsend & Rollason, 2972.
Cooley, 3054.

**Surgical instruments and tables:**
Foveaux, 359.
Gillingham, 2431.

**Surveying instruments:**
Hoskold & Winspear, 1240.
Stephens, 1993.

**Swages.** *See* "Dies."

**Sweeping floors:**
Orth, 230.

**Sweeping roads:**
Edwards & Edwards, 1258.
Craig, 1605.
Hughes, 1983.
Greenstreet, 2574.

**Syphons.** *See* "Pipes."

**Syringes:**
Street, 2376.

Syruping liquids:
Bagles, 926.
Sweetser, 1064.
Cotterell & Prudencio & Wilcocks, 2945.

Syrups. *See* "Sugar."

## T.

T iron:
Hanson, 402.

Table covers:
Gibson, 2961.
Briggs, 2971.

Table linen:
Parrish (*Parrish*), 1610.

Table ware:
Bousfield (*Goddard & Adams*), 2064.

Tablets (memorandum):
Boston, 3327.

Tacks. *See* "Nails."

Taffo-guano. *See* "Manure."

Take-up motion in looms:
Morris, 203.
Kuttner, 1875.
Butterworth & Hawksworth, 3025.

Tallow:
Douglas, 507.
Stapfer & Dean, 942.
Gwynne, 1675.
Fenton, 1897.
Amos, 2245.
De La Peyrouse, 2269.
Fortoul, 3249.

Tan or spent bark:
Broad, 225.
Broad, 1994.

Tanks. *See* "Cisterns."

Tanning skins. *See* "Leather."

Tapers and wax-lights:
White (*Beurle & Ujhely*), 2364.
Ascough, 3478.

Tapes. *See* "Weaving narrow fabrics."

Tapioca:
Clark (*Tunin*), 2631.

Taps. *See* "Valves."

Tarpaulin:
Newton (*Graham*), 1035.
MacCarthy, 2550.
Galland (*Muratori*), 3227.

Tea leaf rolling machines:
Haworth, 2821.

Tea services and urns; obtaining infusions of tea:
Hall, 41.
Rhodes, 106.
Garfield, 1250.
Newton (*Thompson*), 1862.
Wall, 1824.
Curtis, 2040.
Bousfield (*Goddard & Adams*), 2064.
Newell, 2523.
McKenzie & Cameron, 2896.
Bocquet, 3525.

Teaching music, reading, &c.:
Armstrong, 2559.
Jeffers, 2718.

Telegraph stations:
Stoner, 731.

Telegraphic printing:
Varley, 131.
Thomson, 252.
Thomson, 810.
Mackie, 996.
Bull, 1094.
Lake (*Field & Andrews*), 1400.
Lake (*Lefferts*), 1444.
Lake (*Foote & Randall*), 1474.
Herring, 1916.
Whitehouse, 1998.
Wheatstone & Stroh, 2172.
Little, 2286.
Clark & Muirhead, jun., 2418.
Hunt (*Anders & Welch*), 2435.
Varley & Varley, 2596.
Clark (*Meyer & Haas*), 2890.

Telegraphs (electric):
Varley, 131.
Lake (*Devlan, Wendell & Tucker*), 142.
Spagnoletti, 198.
Thomson, 252.
Haseltine (*Watkins*), 273.
Johnson (*Wheeler*), 388.
Warren, 537.
Newall, 611.
Allibon & Walsh, 693.
Stoner, 731.
Rylands, 756.
Newton (*Lenoir*), 974.
Bull, 1094.
Varley, 1150.
Wright (*Minor & Britton*), 1203.
Day, 1364.
Lee & Rogers, 1597.
Lyttle, 1657.
Mallock, 1792.
Croskey (*McKinley*), 1842.
Herring, 1916.
Whitehouse, 1998.
Parnacott, 2067.
Sharrock, 2089.
Lake (*De Wolf's*), 2106.
Wheatstone & Stroh, 2172.
Davis & Struthers, 2256.
Clark (*Robinson*), 2280.
Little, 2286.
Atkinson (*Prentiss*), 2352.
Varley & Varley, 2596.
Zanni, 2721.
Clark (*Meyer & Haas*), 2890.
Hollmann, 3036.
Desgoffe, 3170.
Petersen, 3324.
Hurd, 3462.

Telegraphs (mechanical):
Barton, 378.
Gisborne, 773.
Bagshaw, 973.
Hamilton & Sax, 1027.
Hamilton & Sax, 1574.

Telegraphs (pneumatic):
Lake (*Myers*), 1549.
Guattari, 1624.
Walcker, 1632.
Vagnolini, 2336.
Manier, 2448.
Guattari, 2797.

Telescopes:
Holmes, 447.
Hoskold & Winspear, 1240.
Holmes, 2184.

Tell-tales:
Harding, 323.
Shive, 1990.
Tronchon, 3016.
Grace, 3020.

Temples for looms. *See* "Weaving (pickers)."

Tentering machines:
Kempe & Kempe, 883.

Tents and marquees:
Ritchie & Ritchie, 496.
Lafage, 990.
Newton (*Graham*), 1035.
Turner, 1367.
Ritchie, 1404.
MacCarthy, 2550.
Williams, 2728.
Stevenson, 2914.
Clark (*D'Argy*), 3109.

Terraces (paving). *See* "Road making."

Testing size and weight of yarn:
McGlashan, 1887.

Testing the strength and quality of materials:
Jeavons, 17.
Rylands, 756.
Eyton, 812.

Testing ventilation:
Irvine, 1896.

Theatrical and fancy costumes; stage "armour."
Davis, 3352.

Therapeutics. *See* "Medical treatment of man."

Thermometers:
Davis, Ilbery, Isangk & Sullivan, 1680.
Welsh, Hope & Stevenson, 2761.
Casella, 2805.
Brown, 3007.

Thief detectors:
Haseltine (*Watkins*), 273.
Wilson, 426.
Walsh, 553.
Clark (*Brown & Miles*), 1026.
Zanni, 2721.
Granville, 2758.
Henley & Horstman, 2800.

Thimbles:
Pratt & Johnson, 2176.

Thrashing and hulling corn, grain and seeds:
Clayton & Shuttleworth, 165.
Brasier, 444.
Page, 1122.
Peverett, 1200.
Wilson, 1625.
Marshall, 2075.
Girdwood, 2535.
Newton (*Grimaldi*), 2579.
Edwards, 2962.
Newton (*Powers*), 2988.
Wilders, 3145.
Woodbridge, 3175.
Willsher, 3429.
Edlington & Edlington, 3433.
Childs, 3511.

Threads:
Tongue (*Meynier*), 3126.

Throwing fibrous materials. *See* "Spinning, twisting."

Throwing into gear. *See* "Starting machinery."

Throwing out of gear. *See* "Stop motions."

Tickets. *See* "Stamps."

**Tide-ways (deepening):**
Brodie, 1957.

**Tieing up parcels.** *See* "Presses."

**Tiles and bricks.** *See* "Bricks."

**Tilling land.** *See* "Ploughing."

**Tilting barrels.** *See* "Cask tilters."

**Time-keepers.** *See* "Clocks."

**Tin and terne plates.** *See* "Coating metals."

**Tin foil and substitutes:**
Allin, 227.

**Tin plate scrap iron and pickle (utilizing):**
Becks, 286.
Gedge (*Trottier*), 446.
Ott, 890.
Vaughan (*Lennig*), 2269.
King (*Lauder*), 3028.

**Tinder:**
Samuel, 314.

**Tins (making):**
Hall, 2663.

**Tipping waggons, &c.** *See* "Carriages (unloading)."

**Tobacco, snuff, cigars and smoking apparatus:**
Oldroyd, 47.
Jones, 189.
Schwartz & Schwartz, 539.
Lackersteen & Bromfield, 1004.
Meiter, 1156.
Tribe, 1171.
Bertram (*Bertram*), 1303.
Duncan, 1319.
Blumfeld (*Hiess*), 1320.
Macneill, 1704.
Butterworth, 1793.
Strauss, 1810.
Bertram, 1977.
Hayes & Deakin, 2213.
Gardner (*Mauger*), 2486.
Jackson, 2603.
Tiernan, 2724.
Morris & Davis, 3123.
Vaudoit, fils, 3250.
Warrington (*Louis*), 3315.
Boston, 3327.
Jaques & Sterne, 3437.
Henderson (*Courtchoux*), 3520.

**Toilet and dressing cases:**
Thornhill, 1158.
Ricketts, 3163.

**Tongs:**
Lake (*Garrick*), 2699.

**Tool-holders:**
Baville, 2575.

**Tooth powders.** *See* "Dentistry."

**Torches for lighting gas.** *See* "Gas-burners."

**Torpedoes:**
McEvoy, 10.
Rendel, 828.
Rendel, 981.
Muschamp, 1326.

**Towels:**
Brooks & Fletcher, 1276.
Parrish (*Parrish*), 1610.

**Toys:**
Hogg, 811.
Browne (*Basset*), 2640.
Newton (*National Toy Co.*), 2942.
Mewburn (*Benda*), 3494.

**Track clearers for tramways or railways:**
Saunders, 463.
Fox & Evans, 836.

**Traction engines:**
Wilson, 154.
Girdwood, 307.
Pilkington, 421.
Head & Thomson, 434.
Greig & Eyth, 980.
Todd, 1110.
Paget (*Lemoine*), 1257.
Day (*Campbell & Clark*), 1259.
Bennett, 1273.
Burton & Shaw, 1412.
Coleman & Morton, 1630.
Bethune, 1693.
Perkins, 1822.
Vaughan, 1876.
Clayton & Shuttleworth, 2001.
Lowman, 2508.
Bremme, 2708.
Perkins, 2818.
Clark (*Herrmann*), 2852.
Trevithick, 2977.
Archer, jun., & Hall, 3046.
Sands, 3099.
Parsell, 3207.
Smith, 3240.

**Training plants.** *See* "Horticulture."

**Tramway carriages and breaks:**
Unwin, 405.
Gore, 501.
Armour (*Lamm*), 517.
Salmon, 695.
Fox & Evans, 836.
Duxbury, 988.
Biddulph, 1070.
Todd, 1110.
Wilson, 1625.
Day, 1627.
Clark (*Corbin*), 1676.
Rowan, 1808.
Haddan, 1953.
Galloway, 1958.
Grantham, 1991.
Pidding, 2053.
Thomas, 2067.
Greaves, 2224.
Zamoyski & Jackson, 2372.
Miller, 2405.
Gowans, 2643.
Trevithick, 2977.
Smith (*Messrs. Tiranoff & Kousakoff*), 3164.
Holmes & Taylor, 3427.
Fairbairn, 3497.
Wood, 3522.

**Tramway wheels.** *See* "Wheels for carriages."

**Tramways:**
Wrigley (*Greiff*), 58.
Foulger, 136.
Dyer, 275.
Johnson (*Wheeler*), 388.
Larsen, 433.
Wright, 548.
Fox & Evans, 836.
Pavy, 1325.
Rothery & Rothery, 1471.
Chadwick, 1479.
Dowson & Dowson, 1488.
Barker & McFarlane, 1567.
Page, 1603.
Clark (*Corbin*), 1676.
Galloway, 1757.
Bowyer, 1885.
Haddan, 1953.
Hill, 1973.
Lane, 2003.
Cochrane, 2120.

**Tramways—*cont.***
Thompson, 2278.
Gowans, 2343.
Livesey, 2385.
Bell, 2411.
Gowans, 2444.
Gowans, 2644.
Allan & Gregory, 2693.
Burge, 2722.
Martin, 2774.
Turner, 2843.
Heath, 2913.
Bracken, 3107.
Gowans, 3282.
Pinkus, 3359.
Scott, 3402.
Scott, 3403.

**Transporting passengers, goods, &c.** *See* "Railways."

**Traps for catching animals, fish, game and vermin:**
Chase, 2877.

**Traps for cisterns, drains, &c.:**
Jennings, 229.
Hunt (*Gordon*), 1348.
Hildred, 1745.
Wilson, 1749.
Sutcliffe & Sutcliffe, 1844.
Westo & Pinder, 2428.
Wilson, 2578.
Gunn, 3248.
Tayler, 3388.
Temple, 3496.

**Travelling hoists.** *See* "Hoists."

**Travelling rugs:**
Clark (*Dubois*), 3152.

**Traversers and guides.** *See* "Propelling (machinery)."

**Trenails:**
Snowdon, 97
Parker, 407.

**Trenches; entrenching:**
Wetmore, 100.
Penn-Gaskell, 565.
Tottenham, 946.

**Trimmings; making fringes:**
Dew, 337.
Rath (*Keenan*), 1688.
Nicholls, 2132.
Nicholls, 2159.
Belicard, 2160.
Sage, 2742.
Gibson, 2961.
Hughes, 3129.
Cross, 3450.
Mabson, 3495.

**Troches.** *See* "Medicines."

**Trouser straps.** *See* "Straps for trousers."

**Trucks.** *See* "Carriages."

**Trundles.** *See* "Carriages."

**Trunks.** *See* "Portmanteaus."

**Trusses for hernia**
Bailey (*Hickman*), 655.
Lake (*McFarland*), 1519.
Salter, 2204.

**Tube cleaners; cleaning pipes:**
Galloway, 583.
Darwin, 1382.
Clark, 2668.
Mundy, 2876.
Mitchell & Mitchell, 3071.

**Tubes.** *See* "Pipes."

**Tubs:**
Clark (*D'Argy*, 3109.

**Tunnels and subways:**
Ball, 445.
Appleby, 1072.
Pavy, 1325.
Griffiths, 1532.
Poupard & Thomson, 1530.
Wright, 2273.
Fothergill-Cooke, 2313.
Scott, 2647.
Greathead, 2768.
Scott, 3428.

**Turbines.** *See* "Waterwheels."

**Turkish towels.** *See* "Towels."

**Turning and turning tools:**
Snowdon, 97.
Knowles & Hetherington, 228.
Burstow, 312.
Winter, 313.
Johnson (*Wheeler*), 388.
Western, 616.
Tenwick, 626.
Towle (*Poole*), 877.
Robertson, 1528.
Smith & Coventry, 1812.
Galloway, 1958.
Bousfield (*Goddard & Adams*), 2064.
Griffin (*Chadborn & Coldwell*), 2397.
Clark (*Gordon*), 2632.
Hobson, 3027.
Ryder, 3079.
Spence (*Penson*), 3239.

**Turnstiles for carriages.** *See* "Carriage turnstiles."

**Turntables (floating):**
Granville, 1506.

**Turntables (railway).** *See* "Railways."

**Turpentine:**
Sinclair, 1666.

**Turrets.** *See* "Ships of war."

**Twine.** *See* "Ropes."

**Type.** *See* "Printing."

## U.

**Umbrella stands:**
Bolton, 2707.

**Umbrellas, parasols and sunshades:**
Widdowson, 316.
Ritchie & Ritchie, 496.
Sutherland, 562.
Johnson (*Drown, jun.*), 633.
Hughes, 919.
Ritchie, 1404.
Baker, 1707.
Bousfield (*Goddard & Adams*), 2064.
Smith (*Shepard*), 2125.
Smith (*Clarke*), 2126.
Slater & Schollar, 2272.
Sievier, 2475.
Stoney, 2602.
Ronald, 2695.
Lake (*Alexander, Clarke & Clarke*), 2936.

**Uncoupling:**
Clarke & Hughes, 1461.
Rogers, 1924.
Rogers, 3236.
Matthew, 3382.

**Unloading waggons.** *See* "Carriages (unloading)."

**Untwisting ropes.** *See* "Rags."

**Unwinding thread from reels:**
Schmolle, 139.

**Upholstery (mattresses, beds, cushions and curtains):**
Clark (*Hankinson*), 5.
Haseltine (*Sperry*), 235.
Gardner, Lowe, Wood, Wood & Pickering, 276.
Starr (*Wotton*), 296.
Lake (*Rogers*), 339.
Lafage, 990.
Perkins, 1006.
Holdsworth, Messrs., 1068.
Wicks, 1177.
Lake (*Comstock*), 1216.
Macintosh & Boggett, 1226.
Gardner, Lowe, Wood, Wood & Pickering, 1249.
Haseltine (*Harrington*), 1399.
Samuels, 1569.
Taylor, 1649.
Hughes (*Peck*), 1732.
Strang, 1765.
Brandon (*De Gonsalo & Grissi*), 1815.
Shaw & Shaw, 1826.
Blick & Bishop, 2167.
Lake (*Barret*), 2240.
Knowland & Smith, 2367.
Gedge (*Pavel*), 2490.
Lichtscheindl (*Crandall*), 2690.
Rydill, 2752.
Gibson, 2961.
Lake (*Pease*), 3102.
Birt, jun., & Birt, 3104.
Mills (*Marston & Brooks*), 3265.
Hart, 3279.
Schuurman, 3306.
Hughes (*Coit*), 3313.
Vericchio, 3356.
Wood, 3419.
Chapman, 3489.

**Urinals:**
Jennings, 229.
Morris, jun., & Eskholme, 249.
Thomas, 473.
Heyworth, 474.
Morris, jun., 484.
Lowthian, 490.
Tylor, 685.
Olver, 714.
Dover, 804.
Pollock & Pollock, 1417.
Franks, 1829.
Brown, 1859.
Edgcome, 2964.

**Urine (treating).** *See* "Manure."

**Urinometers:**
Blaise, 2594.

**Urns.** *See* "Tea services."

## V.

**Vacuum pans:**
Brough & Fletcher, jun., 1777.
Robertson, 3232.

**Valises:**
Mac Dowall, 955.

**Valves, taps and plugs; regulating the flow and pressure of fluids:**
Willoughby, Messrs., 16.
Bolding, Bolding & Titsink, 35
Vogan, 37.
Russell, 43.
Randell, 63.
Bouch, 64.
Mills, 88.
Preston, Prestige, Preston & Prestige, 96.
Leask, 127.
Brotherhood & Kittoe, 148.
Hosken, 151.
Rider, 164.
Hunt, 166.

**Valves, taps, &c.—*cont.***
Newton (*De Navarro*), 184.
Haywood & Parker, 216.
Funck (*Meissner, Ackermann & Co.*), 237.
Macintosh, 242.
Galloway & Beckwith, 247.
Morris, jun. & Eskholme, 249.
Robinson, 253.
Davey, 277.
Wilke & Esplen, 342.
Adamson, 344.
Foveaux, 359.
Ommanney & Routledge, 361.
Clause, 379.
Dawson (*Dawson*), 381.
Beasley, 395.
Jennings, 400.
Barclay, 404.
Pocock, 426.
Slater, 461.
Heyworth, 474.
Morris, jun., 484.
Lowthian, 490.
Glaskin, 492.
Snowden & Moffat, 525.
Haseltine (*Perkins, Moulton & Sawyer*), 528.
Common, 543.
Marchant, 546.
Lake (*Pitts*), 549.
Boyd, 559.
Cotterill & Biddle, 572.
Lake (*Clemens*), 602.
Cannon, 619.
Dodds, 627.
Birchall, 641.
Vosper, 642.
Murphy, 646.
Kittoe & Brotherhood, 646.
Inglis & Spencer, 651.
Tylor, 685.
Robinson, 700.
Olver, 714.
Wilson, 717.
Wigham, 729.
Kendall, 738.
Busch, 746.
Lake (*Ireland*), 789.
Newton (*Seibert*), 796.
Porter, 807.
Lake (*Cameron*), 838.
Rowley & Humphrey, 896.
Birchall, 898.
Birchall, 899.
Robson, 900.
Eagles, 926.
Atkins, 934.
Atlee & Atlee, 936.
Hollinshead, 939.
Forman, 1040.
Field & Olrick, 1048.
Cox, 1053.
Sweetser, 1064.
Truscott, 1172.
Finley, 1173.
Starkie, 1192.
Stapfer & Sinclair, 1203.
Duckham, 1210.
Newton (*De Navarro*), 1227.
Hughes (*Hughes*), 1239.
Anderson, 1242.
Day (*Campbell & Clark*), 1259.
Nickols, 1266.
Shaw & Boardman, 1283.
Kirk, 1286.
Grindrod, 1293.
Donald & Atkey, 1302.
Dawes, 1321.
Lake (*Brandt, Lehr, Fisher & Brecht*), 1327.
Hopkinson, jun., 1358.
Walker, 1365.
Jones, 1373.
Reinlein, 1376.
Taylor, 1380.
Chappé, 1395.
Towle (*Babcock*), 1418.
Videky (*Mayrargues*), 1469.
Tongue, 1478.
Whitaker, 1485.
Munson (*Clark*), 1535.
Cowburn, 1546.
Waddington & Turner, 1551.
Greig & Daniel, 1599.

**Valves, taps, &c.—*cont.***

Hughes (*Sigl*), 1641.
Benson (*Burdett*), 1658.
Melling, 1681.
Rawlings, 1684.
Lilley, 1710.
Lake (*Kinne*), 1713.
Davies, 1716.
Dixon, 1741.
Wilson, 1749.
Brough & Fletcher, jun., 1777.
Kaeuffer, 1794.
Whitwell, 1797.
Shive, 1803.
Franks, 1829.
Preston, Prestige, Preston & Prestige, 1845.
Vaughan, 1876.
Andrews, 1891.
Warner & Brooke, 1919.
Weir (*Weir*), 1936.
Preston, Prestige, Preston & Prestige, 1937.
Mirchin, 1952.
Morrison, 1955.
Galloway, 1958.
Revell & Collin, 1992.
Giffard, 2011.
Watkin, 2029.
Chameroy, 2033.
Hosken & Fleury, 2047.
Miller, 2060.
Goldsmith & Dilkes, 2063.
Newton (*Molard*), 2091.
Widmark, 2093.
Guinotte, 2094.
Roberts, 2135.
Giles, 2137.
Beasley, 2156.
Holt, 2164.
Grabham, 2180.
Jochumsen, 2207.
Johnson (*Berryman*), 2218.
Watson & Andrews, 2223.
Abel (*Messrs. Rousseau*), 2229.
Brown, 2253.
Campbell (*Campbell*), 2285.
Hughes (*Windhausen*), 2355.
Goulding, 2381.
Westo & Pinder, 2428.
Westinghouse, jun., 2436.
Furness, 2437.
Clark (*Baqué & Féraud*), 2451.
Pawson, 2462.
Pinn, 2469.
Taylor, 2473.
Hughes (*Harper*), 2494.
Clark (*Livingstone*), 2513.
Brown, 2529.
Lees, 2565.
Lake (*Waters*), 2607.
Clark (*Petitpierre*), 2616.
Stevenson, 2654.
Darlington, 2657.
Westinghouse, jun., 2684.
Sterne (*Almqvist*), 2714.
Fairlie, 2725.
Mann, 2755.
Wright, 2764.
Lake (*Wiegand*), 2793.
Barrie, 2804.
Petrie, 2813.
Hughes (*Curtis*), 2815.
Lake (*Cruickshank & Smith*), 2911.
Cameron, 2930.
Newton (*Wagstaff*), 2937.
Tylor, 2948.
Watteau (*François & Dubois*), 3004.
Willison, 3026.
Hunt (*Copeland*), 3045.
Kirk, 3064.
Brandon (*Fogelberg*), 3086.
Millard, 3151.
Johnson (*Denans*), 3153.
Evered, 3245.
Clark (*Leblond & Mulot*), 3277.
Simpson & Gardner, 3304.
Roberts, 3325.
Bray, 3367.
Hocking & Pinker, 3372.
Newton (*Otis & Otis*), 3430.
Gwynne & Beale, 3449.
Abel (*Eycx*), 3452.
Peters & Peters, 3458.

**Valves, taps, &c.—*cont.***

Pawson, 3460.
Newton (*Radinger*), 3462.
Brandon (*Fogerty*), 3848.

**Vapour baths.** *See* "Baths."

**Varnishes; glazes:**

Eveleigh, 443.
Denne & Hentschel, 730.
Wright (*Minor & Britton*), 1208.
Granger & Hyan, 1381.
Wood (*Wood*), 2421.
Chapman, 2440.
Webster, 2810.
Steele, 3301.
Dale, 3340.

**Vases:**

Hall, 41.
Bousfield (*Goddard & Adams*), 2064.
Sowerby, 2433.
Baranowski & Skwarcow 3021.

**Vats:**

Torrance & Torrance, 1833.
Croskey (*McKinley*), 1842.

**Vegetable extracts (decolorizing):**

Dawlings (*Brough & Gilson*), 1406.

**Vegetable oils.** *See* "Oils from seeds."

**Vegetables (preserving).** *See* "Preserving food."

**Velocipedes:**

Swan, 99.
Boehringer & Krall, 214.
Thomas, 864.
Wyndham, 924.
Reynolds & Mays, 1342.
Noble & Grout, 1468.
Galloway, 1958.
Johnson (*Perreaux*), 2208.
Ainsley, 2569.
Hobson, 3027.
Newton (*De Forville*), 3281.

**Veneers.** *See* "Wood."

**Vent pegs for casks.** *See* "Casks."

**Vent pipes for lamps.** *See* "Lamps."

**Ventilating carriages:**

Titley, 896.
Ash, 1223.
Isherwood, 1941.
Wilson, 1950.
Miller, 2405.

**Ventilating hats.** *See* "Hats."

**Ventilating houses and buildings:**

Lascelles, 72.
Ritchie, 185.
Boyle, 221.
Slater, 461.
Titley, 896.
Newton (*Thompson*), 1019.
Turner, 1367.
Chadwick, 1479.
Hyatt, 1482.
Marchant, 1490.
Stephens, 1493.
Poupard & Thomson, 1530.
Ekman, 2074.
Amos, 2179.
Newton (*Hayes*), 2210.
Amos, 2245.
Webber, 2250.
Davis, 2276.
Horley, 2357.
Smith, jun., 2455.
Lacey, 2552.
Waller, 2593.
Tossill, 2661.

**Ventilating houses, &c.—*cont.***

Goll (*Moll*), 2672.
Welsh, Hope & Stevenson, 2761.
Ashford, 2771.
Tayler, 2778.
Heyl, 2786.
Hornblower, 2848.
Bates, 2912.
Papier, 2941.
Lankester, 3242.
Taylor, 3260.
Ebdy, 3297.
Tylor, 3339.
Scott, 3428.

**Ventilating mines:**

Cochrane (*Guibal*), 173.
Thomas, 915.
Tylor, 1411.
Scott, 2647.
Welsh, Hope & Stevenson, 2761.
Briggs, 2971.
Tylor, 3339.
Scott, 3428.

**Ventilating packed goods.** *See* "Packed goods."

**Ventilating refrigerators and provision safes:**

Gilbody (*Reed*), 1295.
Baggs, 1806.

**Ventilating sewers:**

Hildred, 1745.
Tylor, 3339.
Temple, 3496.

**Ventilating ships:**

Boyle, 221.
Johnson (*Warden*), 1578.
Mills (*Thiers*), 1883.
Welsh, Hope & Stevenson, 2761.
Papier, 2941.

**Ventilating smoothing irons:**

Sanson, 2036.
Clark (*Gaensly & Rueger*), 2199.

**Ventilating tunnels and passages:**

Poupard & Thomson, 1530.
Fothergill-Cooke, 2313.
Scott, 2647.
Welsh, Hope & Stevenson, 2761.
Scott, 3428.

**Ventilating wearing-apparel:**

Abrahams, 2915.

**Verandahs:**

Thomas, 473.
Lee & Rogers, 1597.
Brannon, 2703.

**Vermin (destroying):**

Bateson, 1137.
Tongue, 1478.
Chase, 2877.

**Vessels (discharging beverages, liquids, fluids or semi-fluids from):**

Barns, 2986.

**Viaducts.** *See* "Bridges."

**Vices:**

Teague (*Simpson*), 1492.
Fryer & Steers, 2432.

**Vinegar:**

Smith, 1390.

**Voltaic batteries.** *See* "Electricity."

**Voting or ballot apparatus:**

Smith, 662.

## W.


**Walking-sticks; canes:**
Hughes, 919.
Newton (*Thompson*), 1362.
Bousfield (*Goddard & Adams*), 2064.
Stoney, 2602.
Lake (*Alexander, Clarke & Clarke*), 2936.

**Walls:**
Lake (*Kemmer*), 234.
Farrell, 317.
Hennis, 703.
Marshall, 800.
Descamps & Breh, 941.
Tall, 1001.
Bird, 1193.
Chadwick, 1479.
Hyatt, 1482.
Griffiths, 1522.
Galloway, 1628.
Skinner, 1795.
Croskey (*McKinley*), 1842.
Munro & Adamson, 2034.
Cochrane, 2120.
Neilson, 2483.
Turner 2572.
Brannon, 2703.
Hornblower, 2848.
Haseltine (*Rowell & Duncan*), 3108.
Jupp, 3338.

**Wardrobes:**
Fisher, 1205.
Blackburn, 1767.

**Warped fabrics.** *See* "Knitting."

**Warping and beaming machines:**
Tatham & Tatham, 219.
Lancaster, 462.
Briggs, Willan & Lewis, 914.
Heyes & Entwistle (*Cummings*), 1119.
Dickinson, 1262.
Dickinson & Parkinson, 1414.
Parkinson, 1573.
Webb, 1667.
Wilson (*Wilson & Hunter*), 1912.
Radford, 2480.
Abbott, 2957.
Lamb, 3089.
Brimelow, 3426.

**Washers.** *See* "Nuts."

**Washing and wringing fabrics, yarns, &c.:**
Scaife & Younger, 89.
Roeckner, 119.
Thomas, 354.
Hirst, Messrs., 368.
Cochrane, Messrs., 389.
Macleod, 392.
Macleod, 494.
McNaught & McNaught, jun., 542.
Hunt (*Féron-Flament*), 584.
Whitaker, Lupton & Catlow, 631.
Kirkham, Ensom & Spence, 645.
McFarlane, 839.
Newton (*Assmann*), 867.
Riddell, 923.
Johnson (*Albrecht*), 968.
Brookes (*Leroy*), 1031.
Sagar & Richmond, 1061.
Forbes, sen. & Forbes, 1260.
Bacon (*Bacon*), 1272.
Stewart, 1470.
Pearson, 1583.
Pearson, 1590.
Fisken, 1614.
Schlesinger (*Dixon*), 1739.
Riddell, 1839.
Sinclair, 1930.
Petrie, jun., 2027.
Lake (*Heery*), 2152.
Hoyle & Bailey, 2309.
Abel (*Grison*), 2362.

**Washing fabrics, &c.—*cont.***
Mirfield & Scott, 2394.
Murdoch, 2445.
Andrews & Gibbs, 2525.
Jackson, 2656.
Lake (*Lang*), 2719.
Heywood, 2720.
Burrell, 3061.

**Washing casks or bottles:**
Scaife & Younger, 89.
Pontifex & Sherwood, 1078.
Oxley, 1748.

**Washing coal slack:**
Taylor, 1380.

**Washing grain, seeds, rice and potatoes:**
Scaife & Younger, 89.

**Washing gun cotton:**
Patton & Piper, 1336.

**Washing or scouring saucepans, &c.** *See* "Pots."

**Washing ores or minerals:**
Scaife & Younger, 89.
Green, 158.
Madge (*Ffrench*), 176.
Crispin, 283.
Goodman, 358.
Collom, 440.
Newton (*Collom*), 833.
Borlase, 928.
Doble, 1077.
Wigg, 1366.
Green, 2892.

**Washstands.** *See* "Lavatories."

**Waste fibres and yarns.** *See* "Rags."

**Watches.** *See* "Clocks."

**Water (obtaining fresh and pure):**
Starnes, 1697.
Morrison, 1955.
Hildesheim, 2217.
Pow, 2760.

**Water coolers:**
Bousfield (*Goddard & Adams*), 2064.

**Waterclosets and commodes:**
Bolding, Bolding & Titsink, 35.
Jennings, 229.
Morris, jun. & Eskholme, 249.
Heyworth, 474.
Morris, jun., 484.
Lowthian, 490.
Eskholme, 654.
Tylor, 685.
Olver, 714.
Hall, 846.
Fahlman, 1269.
Southwood, 1316.
Pollock & Pollock, 1417.
Videky (*Mayrargues*), 1469.
Davies, 1716.
Baker, 1754.
Franks, 1829.
Target, 1847.
Brown, 1859.
Taylor, 1969.
Hosken & Fleury, 2047.
Gillingham, 2431.
Naylor, 2443.
Williamson & Glazier, 2497.
Wall, 2526.
Moesch, 2608.
Mann, 2755.
Wright, 2764.
Barrie, 2804.
Edgcome, 2964.
Shanks, 2968.
Barnsley & Barnsley, 3003.
Miccio, 3042.

**Waterclosets, &c.—*cont.***
Gunn, 3248.
Jervis, 3285.
Waring, 3368.
Tayler, 3388.
Minton, 3391.
Anderson, 3455.
Peters & Peters, 3458.
Pawson, 3460.
Calantarients, 3517.

**Watering cans:**
Pumphrey, 330.

**Watering cattle on railways:**
Wilson, 991.
Wilson, 1950.
Lake (*Calkins*), 2044.
Welch, 2303.

**Watering streets and ground:**
Dover, 804.
Edwards & Edwards, 1258.
Nicholls, 1447.
Evans & Evans, 1576.
Brown, 1940.
Wells, 3008.
Ney, 3131.
Tylor, 3339.
Bayley, 3457.

**Waterproofing; waterproof fabrics:**
Carteron & Rimmel, 115.
Lake (*Kemmer*), 234.
Hodge, 398.
Somervell, 615.
Turner, 630.
Hughes (*Shelton*), 985.
Lafage, 990.
Newton (*Graham*), 1035.
Crease, 1186.
Wright (*Minor & Britton*), 1208.
Muschamp, 1326.
Turner, 1367.
Lyttle, 1535.
Sproul, 1638.
Manceaux, 1811.
Parnacott, 2070.
Lake (*Heery*), 2152.
Douglas & Watson, 2158.
Davis & Struthers, 2256.
Milbank, 2283.
Ford, 2311.
Harrington, 2423.
Furlong, 2484.
Muratori, 2521.
Abrahams, 2915.
Briggs, 2971.
Townsend & Rollason, 2972.
Macintosh, 2992.
Metz, 3302.

**Water-supplying in breweries:**
Warwick, 163.

**Water-supplying to boilers.** *See* "Steam-boilers (water-feeding)."

**Water-supplying to towns:**
Smee, 182.
Jennings, 229.
Morris, jun., & Eskholme, 249.
Heyworth, 474.
Morrison, 1955.
Chameroy, 2033.
Banks & Walker, 2495.
Jervis, 3285.
Calantarients, 3517.

**Waterwheels; hydraulic motive-power:**
Benson (*Gardner & Turrell*), 332.
Davies & Hutchinson, 612.
Johnson (*Schmid*), 906.
Lake (*Capron*), 1062.
Lake (*Deverell*), 1063.
Morgan-Brown (*Goulding*), 1199.
Stephens, 1493.
Wilson, 1625.
Davies, 1716.
Griffin, 1736.
Ramsbottom, 1740.

**Waterwheels, &c.—*cont.***
Cole, 1813.
Rothwell, 1929.
Galloway, 1958.
Holt, 2164.
Found, Watson & Erck, 2312.
Smith (*Folacci & Lamie*), 2395.
Barlow, 2401.
Banks & Walker, 2495.
Smith, 2507.
Simpson, 2536.
Slagg, 2697.
McAdam, 2861.
Brandon (*Fogerty*), 3483.
Wightman, 3487.

**Wave engines.** *See* "Waterwheels."

**Wax:**
Riddell, 923.
Stapfer & Dean, 942.
Gwynne, 1675.
Stapfer, 2591.
Crane & McGrath, 2989.

**Wearing-apparel; outer garments for gentlemen:**
Osbourn, 268.
Lake (*Warth & Jobbins*), 293.
Greenbeam, 353.
Barran & Barran, jun., 377.
Minns, 438.
Stoner, 570.
Osbourn, 767.
Lafage, 990.
Turner, 1367.
Pulvermacher, 1460.
Brewer (*Edard & Basault*), 1947.
Parnacott, 2070.
Tinker & Messrs. Marsden, 2323.
MacCarthy, 2550.
Abrahams, 2915.
Briggs, 2971.
Clark (*Dubois*), 3152.
Hall, 3314.

**Weaving carpets, velvets, table covers and other pile fabrics:**
Gautier, 482.
Tongue (*Merrill*), 740.
Lister, 1116.
Lister & Reixach y Gispert, 1117.
Turner, 1209.
Hodgson & Moxon, 1251.
Crabb, 1459.
Webb, 1667.
Milburn, 1762.
Belicard, 2160.
Lister, 2197.
Lake (*Gates*), 2214.
Ramsden, 2277.
Templeton, 2709.
Hattersley & Smith, 3030.
Wolstenholme, Buckley & Buckley, 3051.
Lamb, 3089.
Tebbutt, 3159.
Gedge (*Petit*), 3178.
Oldroyd & Oldroyd, jun., 3294.
Wilkinson, jun., 3412.

**Weaving narrow fabrics:**
Ramsden, 222.
Greenwood, Mills & Pearson, 411.
Hirst, 1442.
Lister, 1821.
Nicholls, 2132.
Nicholls, 2159.
Greenwood, Mills & Pearson, 2514.
Sage, 2742.
Nutter, 2995.

**Weaving (pickers and temples):**
Lister, 458.
Howarth & Clayton, 598.
Stewart & Bond, 594.
Holding, 733.
Haigh, 743.
Craik & Balshaw, 1253.
Holding, 1848.
Burslem, 1855.

**Weaving (pickers, &c.)—*cont.***
Lister, 2197.
Horrocks, 2733.
Turnpenny, Atkinson & Davy, 2996.
Butterworth & Hawksworth, 3025.
Hill, 3142.

**Weaving plain, figured and double fabrics; jacquards and looms; woven fabrics:**
Botterill, jun. & Morrell, 4.
Mitchell, 30.
Belicard & Ditchfield, 57.
Roeckner, 119.
Richmond & Cooper, 130.
Roberts & Shaw, 172.
Conlong, 178.
Morris, 203.
Nuttall, 215.
Ramsden, 222.
Whiteley & Harling, 243.
Bell, Urquhart & Lindsay, 306.
Ormerod, 333.
Eccles, 335.
Lake (*Rogers*), 339.
Greenwood, Mills & Pearson, 411.
Armistead, Tunstill & Bannister, 439.
Glover & Hargreaves, 459.
Lancaster, 462.
Gautier, 482.
Millard, 522.
Arnold, 533.
Ramsden, 589.
Tuer, Tuer & Holden, 652.
Mitchell, 665.
Murray & Cowburn, 686.
Hodgson & Broadley, 751.
Pearson & Bradbury, 881.
Laycock, 979.
Lake (*McConnell*), 1015.
Holdsworth, Messrs., 1068.
Ramsden, 1109.
Lake (*Comstock*), 1216.
Craik & Balshaw, 1253.
Brooks & Fletcher, 1276.
Barraclough & Bright, 1294.
Shackleton, 1334.
Ramsden, 1372.
Towle (*Babcock*), 1418.
Muir & McIlwham, 1476.
Jones, jun., & Bell, 1477.
Clark (*Heilmann & Heilmann*), 1600.
De Grandchamp, 1602.
Shephard, 1689.
Strang, 1765.
Holding, 1848.
Helliwell, 1871.
Kuttner, 1875.
Armistead, Tunstill & Tunstill, 2021.
Johnson (*Nimmo, Moran, Stausse & Ensinger*), 2174.
Williamson, Williamson & Shield, 2192.
Slater & Schollar, 2272.
Dodgeon & Baldwin, 2307.
Pedley & Pedley, 2460.
Sievier, 2475.
Greenwood, Mills & Pearson, 2514.
Dendy & Taylor, 2560.
Taylor, Clegg & Taylor, 2577.
Catlow, 2589.
Bowker, 2692.
Clark (*Short*), 2792.
Strang, 2814.
Lockyer, 2889.
Butterworth & Hawksworth, 3025.
Lake (*Isherwood*), 3103.
Reed, 3220.
Shaw, 3405.
Cross, 3450.
Crowley (*Gruinder*), 3491.
Smith, 3514.

**Weaving (shuttles):**
Richmond & Cooper, 130.
Conlong, 178.
Kenyon, 346.
Isherwood, 1123.
Kuttner, 1875.
Whitworth, 1997.
Barnett, 2368.
Bottrill, 2419.

**Weaving (shuttles)—*cont.***
Sage, 2742.
Lake (*Isherwood*), 3103.
Ashworth, 3445.

**Weaving wire fabrics:**
Nutter, 2995.

**Weeders.** *See* "Horticulture."

**Weighing-machines, scales and balances; indicating weight:**
Sharkey, 284.
Benson (*Gardner & Turrell*), 332.
Napier, 467.
King, 629.
Mackintosh, 668.
Hopkinson, 1204.
Kloen, 1219.
Newton (*Allen & Allen*), 1352.
Hopkinson, 1292.
Donbavand, Messrs. 1298.
Napier, 170
McGlashan, 1887.
Ragg, 2052.
Haseltine (*Raff, Hoffman & Lukey*), 2408.
Harper, 2600.
Loughton, 2741.
Macintire, 3247.

**Weirs:**
Descamps & Breh, 941.
Martin, 1318.

**Welding metals.** *See* "Metals (forging)."

**Wells:**
Appleby, 1072.
Croskey (*McKinley*), 1842.
Dunn, 2748.

**Wheat.** *See* "Grain and seeds."

**Wheelbarrows:**
Storer (*Cameron*), 1663.

**Wheels for carriages; railway and tramway wheels:**
Fell, 1.
Lismann, 66.
Haseltine (*Holley*), 69.
Swan, 99.
Stewart, 104.
Roeckner, 119.
Foulger, 136.
Pendred, 194.
Wilson, 418.
Pilkington, 421.
Butler, 497.
Wilkes, 556.
Dodds, 627.
Lee & Lee, 684.
Burton & Burton, 760.
Pinchbeck, 787.
Moseley, 862.
Greig & Eyth, 980.
Mackinder, 1005.
McNicol, 1012.
Todd, 1110.
McNeile & Slater, 1168.
Firth, 1268.
Stewart, 1333.
Reynolds & Mays, 1342.
Newton (*Allen, Kimball, Mallory & Butterfield*), 1370.
Johnson, 1378.
Perkins, 1379.
Burton & Shaw, 1412.
Wilson, 1625.
Coleman & Morton, 1630.
Bethune, 1693.
Newton (*Phelps*), 1756.
Mills (*Lewis*), 1882.
Haddan, 1953.
Galloway, 1958.
Grantham, 1991.
Lane, 2003.
Day (*Campbell & Clark*), 2205.
Greaves, 2224.
Lake (*Eaton*), 2403.

**Wheels for carriages, &c.—*cont.***

Sanders, 2465.
Bremme, 2708.
Fletcher, 2732.
Turner, 2843.
Clark (*Herrmann*), 2852.
Alley, 2859.
Smith (*Lengelée & Boutlier*), 2867.
Pidding, 2873.
Trevithick, 2977.
Archer, jun., & Hall, 3046.
Sand, 3099.
Burrell & Fowell, 3105.
Smith (*Messrs. Tiranoff & Kousakoff*), 3164.
Tweddell, 3358.
Le Harivel, 3418.
Webb, 3442.

**Wheels for machinery; pinions:**

Henderson, 397.
Wheeldon, 555.
Tenwick, 626.
Munson (*Clark*), 1525.
Robertson, 1528.
Handcock, 1616.
Munson (*Clark*), 1760.
Lake (*Howe & Sommerville*), 1830.
Wilson (*Wilson & Hunter*), 1912.
Edwards, 2982.
Death & Ellwood, 3120.
Jones, 3373.
Goubet & Monrocq, 3506.

**Whips:**

Hughes (*Shelton*), 985.

**Whiskey.** *See* "Distilling alcohol."

**Whisks or dusters.** *See* "Brushes."

**Whisks or mixers.** *See* "Mixing."

**White lead.** *See* "Metallic salts."

**Wicks for candles and lamps:**

Sterry, 95.
Bousfield (*Whipple*), 587.
Hirst, 1442.
Greaves, 1698.
Pickering, 2584.
Pickering, 2796.
Ascough, 3478.

**Winches.** *See* "Hoists."

**Windguards.** *See* "Flues."

**Winding, balling and reeling yarn and thread:**

Payne, 19.
Whitehead, 480.
Tullis, 465.
Booth (*Draper & Draper*), 737.
Tankard & Cockcroft, 772.
Witham & Whitham, 816.
Hughes (*Snoeck*), 920.
Clayton, 1129.
Emmott, 1134.
Suggitt, Court & Court, 1254.
McKellen, 1538.
Witham & Whitham, 1629.
Payne & Newton, 1656.
Livsey (*Merrick*), 1778.
McGlashan, 1887.
Revell & Collin, 1992.
Cornthwaite, 2022.
Unsworth & Whalley, 2077.
Hughes (*Snoeck*), 2581.
Darlington, 2657.
Wood, 2849.
Bollé, 3415.

**Windlasses.** *See* "Hoists."

**Windmills:**

Newton (*Brown*), 357.
Newton (*Brown*), 2107.

**Window blinds; sun blinds:**

Young, 80.
Parnell, 102.
Porecky, 152.

**Window blinds, &c.—*cont.***

Jeffreys, 450.
Kent, 606.
Titley, 896.
Newton (*Thompson*), 1018.
Manuel, sen. & Manuel, jun., 1426.
Crespi, 1454.
Cadman, 1862.
Finlayson, 2141.
Newton (*Hayes*), 2210.
Hatton & Hatton, 2279.
Hatton & Hatton, 2530.
Lecloux, 2842.
Neale, 2950.
Gibson, 2961.
Bayley, 3037.
Clark (*D'Argy*), 3109.

**Window signs.** *See* "Signboards."

**Windows, sashes and skylights:**

Lascelles, 72.
Burr, 258.
Shute, 331.
Slater, 461.
Newton (*Gates*), 749.
Webb, 832.
Tall, 1001.
Newton (*Thompson*), 1019.
Levy, 1141.
Baines, 1166.
Baker, 1317.
Newton (*Thompson*), 1362.
Turner, 1367.
Tavener, 1544.
English, 1750.
Brown, 1784.
Rogers, 1926.
Hayward, 2014.
Neale, 2068.
Ekman, 2074.
Stenger, 2183.
Newton (*Hayes*), 2210.
Davis, 2276.
Burstow, 2310.
Long, 2398.
Miller, 2405.
Neilson, 2463.
Defflis (*Mauger*), 2496.
Pinder, 2519.
MacCarthy, 2550.
Neale, 2618.
Hughes, 2675.
Cousins, 2782.
Lecloux, 2842.
Neale, 2950.
Rendle & Burrows, 3002.
Hall, 3049.
Clark (*D'Argy*), 3109.

**Wine; wine coolers:**

Gillman & Spencer, 607.
Garton, 1232.
Rumine, 1467.
Bousfield (*Goddard & Adams*), 2064.

**Winnowing machines:**

Clayton & Shuttleworth, 165.
Page, 1122.
Jones, jun., & Bell, 1477.

**Winter gardens:**

Touaillon (*André & Fleury*), 3199.

**Wire-working; wire ropes; wire fabrics:**

Stewart, 104.
Guest & Craddock, 144.
Lake (*Rogers*), 339.
Johnson (*Wheeler*), 388.
Jeffreys, 450.
Arnold, 523.
Warren, 537.
Wheeldon, 555.
Newall, 611.
Rylands, 756.
Eyton, 812.
Breach, 961.
Perkins, 1006.
Newton (*Graham*), 1035.
Townsend (*Goddu*), 1079.
Woods & Woods, 1086.

**Wire-working, &c.—*cont.***

Unsworth, 1088.
Wright (*Minor & Britton*), 1198.
Kennan & Kennan, 1285.
Stewart, 1333.
Hugon (*Jubelin*), 1344.
Day, 1364.
Putnam, 1439.
Russell, 1587.
Lee & Rogers, 1597.
Fowke, 1621.
Foster, jun., 1633.
Hughes (*Peck*), 1732.
Mallock, 1792.
Bayliss, 1836.
Croskey (*McKinley*), 1842.
Holding, 1848.
Parnacott, 2057.
Lake (*De Wolfe*), 2106.
Davis & Struthers, 2256.
Chapman, 2440.
Turner, 2572.
Lichtscheindl (*Crandall*), 2690.
Brannon, 2703.
Hornblower, 2846.
Nutter, 2995.
Arnold & Barraclough, 3012.
Clark (*D'Argy*), 3109.
Webb, 3212.
Freystadt, 3267.
Hughes (*Coit*), 3313.
Petersen, 3324.
Lake (*Mason*), 3464.
Lake (*Hiler*), 3466.
Davis, 3475.
Moffatt, 3528.

**Wood and veneers; artificial wood:**

Richardson, 18.
Long, 134.
Seitz, 145.
Annandale, jun., 279.
Tysall, 306.
Smith & Granville, 365.
Annandale, jun., 605.
Annandale, jun., 664.
Riddell, 923.
McNicol, 1012.
Lambert, 1124.
Greaves & Holroyd, 1154.
Schwartz, 1179.
Muschamp, 1326.
Newton (*Keegan*), 1423.
Lyle, 1554.
Houbé, Guinet & Lemarchand, 1594.
Fawcett, 1595.
Colls, Atkinson, Michael & Knight, 1650.
Sinclair, 1666.
Riddell, 1839.
Johnson (*Adamson*), 1853.
Demailly, 1863.
De Bergue & De Bergue, 1914.
Sinclair, 1930.
De Negri, 2019.
Douglas & Watson, 2158.
Johnson (*Adamson*), 2168.
Burton, 2252.
Robinson, 2262.
Cunningham, 2320.
Denempont & Denempont, 2353.
Goulding, 2361.
Brown, 2466.
Neilson, 2463.
McCarter, 2487.
Muratori, 2521.
Granville, 2617.
Demailly, 2635.
Duffee, 2795.
Brown, 2854.
Lake (*Thomas*), 2875.
Newton (*Counord*), 2895.
Robinson & Smith, 2953.
Macintosh, 2992.
Lloyd, 3074.
Austin & Ellis, 3219.
Martin, 3221.
Johnson (*Muller*), 3289.
Alcorn, 3501.

**Work boxes:**

Schmolle, 139.
Tubbs, 1463.

Worms and grubs (destroying):
Gedge (*Laing*), 1723.

Wrack. *See* "Seaweed."

Wrecked ships (removing slime from). *See* "Foundered vessels."

Wrenches; spanners:
Warsop, 1247.
Lake (*Woods*), 1708.
Hosking, 2182.
Hughes, 2301.
Blakemore, Sherring & Horstman 2379.
Bayliss, 2387.
Fryer & Steers, 2432.
Lake (*Garrick*), 2699.

Wrenches, &c.—*cont.*
Hughes, 3129.
Sams, 3271.

Wringing clothes. *See* "Washing fabrics."

Wristbands. *See* "Shirts."

Writing in cypher. *See* "Cyphers."

Writing machines; making writings:
Davies, 918.
De Zuccato, 2883.

Y.

Yachts:
Hansen, 328.
Muntz, 1143.
Macpherson, 2131.

Yeast:
Harding (*Gray*), 916.
Cheesbrough (*Gray*), 1278.
Fordred, 1917.
Milburn & Browning, 2696.

Z.

Zymotic diseases (prevention of):
Westerton, 861.

LONDON:
Printed by George E. Eyre and William Spottiswoode,
Printers to the Queen's most Excellent Majesty.

15 & 16 VICTORIÆ, Cap. 83. Sec. XXXII.

# SUBJECT-MATTER INDEX

OF

# PATENTS APPLIED FOR AND PATENTS GRANTED,

## For the Year 1872.

---

Printed and Published by Order of the Commissioners of Patents

UNDER THE

ACT of 15 & 16 VICTORIÆ, Cap. 83. Sec. XXXII.

BY BENNET WOODCROFT, F.R.S.

CLERK TO THE COMMISSIONERS OF PATENTS.

LONDON:

PRINTED BY GEORGE EDWARD EYRE AND WILLIAM SPOTTISWOODE,
PRINTERS TO THE QUEEN'S MOST EXCELLENT MAJESTY.

PUBLISHED AT THE OFFICE OF THE COMMISSIONERS
OF PATENTS FOR INVENTIONS,
SOUTHAMPTON BUILDINGS, HOLBORN.

1873.

# INDEX OF SUBJECT-MATTER

TO

# CHRONOLOGICAL AND DESCRIPTIVE INDEX

## For the Year 1872.

[The names printed in *Italic* are those of the persons by whom the inventions have been communicated to the Applicants for Letters Patent. The consecutive numbers of the Applications, which are prefixed to the Abridgments contained in this volume, follow the names.


### A.

**Accidents (prevention of):**

Galloway, 14.
Sutcliffe, 43.
Johnson (*Sellers & Sellers*), 50.
Garrood & Hardmet, 51.
Wilson, 129.
Edwards (*Thornton & Buckland*), 495.
Racey & Young, 498.
Taylor & Larkin, 533.
Lake (*Warth & Jobbins*), 536.
Lawson & Fitton, 568.
Newton (*Osgood, Storer & Keys*), 576.
Reilly, 615.
Newton (*Andrews*), 676.
Smith, 712.
Lake (*Emery, Doyen & Sparrow*), 770.
Mewburn (*Fastré*), 779.
Clark (*Quaritius*), 780.
Owen, 886.
Giles, 891.
Reilly, 918.
Barlow, 1147.
Turton, 1371.
Plimsoll, 1400.
Froitsheim, 1509.
Pichery, 1523.
Lockwood, 1555.
Doria, 1625.
Hughes (*Trowbridge*), 1652.
Sullivan, 1689.
Weir & Weir, 1773.
Lynch, 1861.
Cazier, 1941.
Imray (*Denayrouze*), 2142.
Smeaton, 2159.
Vincent, 2510.
Clark (*Byers*), 2546.
Owen, 2815.
Ratcliff, 2914.
Large, 3079.
Richards, 3195.
Lake (*Lefaure & Villain*), 3204.
Wilcke, 3209.
Muschamp, 3218.
Plimsoll, 3274.
Plimsoll, 3281.
Church, 3395.
Weir, 3436.
Morton, 3496.
Gedge (*Isnard*), 3659.
Parkins, 3699.
Morgan-Brown (*Beisson*), 3873.
Clark, 3954.
Gompertz, 3965.

**Accoutrements (soldiers):**

Muratori, 1588.
Clark (*Dubois*), 2219.

**Acetate of alumina.** *See* "Alumina."

**Acidity in beer (removing).** *See* "Brewing."

**Acids; acid pumps; acid bottles:**

Smith (*Du Motay*), 2.
Johnson (*Blondin*), 103.
McDougall, 145.
Bradburn, 210.
Weldon, 317.
Weldon, 359.
Hargreaves & Robinson, 508.
Königs, 571.
Weldon, 602.
Perkins, 642.
Lee, 694.
Russell & Hutton, 794.
Caratti & Church, 954.
Kay & Kay, 1173.
Lake (*Lewis & Pratt*), 1257.
Fitz Gerald & Molloy, 1376.
Christy, jun., & Bobrownicki, 1492.
Solvay, 1525.
Weldon, 1539.
Kenyon, Kenyon & Swindells, 1540.
Brown, 1704.
Downing, 1975.
Dale, 2137.
Cheesbrough (*Clough*), 2156.
Dufrené (*Faure & Kessler*), 2205.
Clark (*Blanchard*), 2265.
Browne (*Storck, Hentsch, Hentsch, Lutscher & Grininger*), 2286.
Morfit, 2341.
Morfit, 2344.
Hargreaves & Robinson, 2573.
Gerland (*Messrs. Albert*), 2614.
Hughes (*Daudenart & Verbert*), 2745.
Michel, 2786.
Michel, 2787.
Morfit, 2822.
Hall, 2885.
Mallet & Scholefield, 2952.
Young, 2989.
Steedman, 3003.
Lowe, 3005.
Price, 3095.
Newton (*Walter*), 3142.
Clark (*Deiss*), 3323.
Lyte (*Storck, Hentsch, Hentsch, Lutscher & Grininger*), 3552.
Lyte (*Storck, Hentsch, Hentsch, Lutscher & Grininger*), 3585.
Lyte (*Storck, Hentsch, Hentsch, Lutscher, Grininger & Decottegnie*), 3685.

**Acids (cases for packing):**

Lake (*Seibert*), 525.

**Acidulating liquids:**

Newton (*Turner & Vanderpool*), 1905.

**Administering pills.** *See* "Pills."

**Advertising:**

Newton (*Gateuil*), 366.
Clark (*McClintock*), 1061.
Pugin, 1092.
Ragon (*Alexandre*), 1181.
Ollard & Barrow (*Gottsberger & Tappin*), 1647.
Escott (*Wilson*), 1759.
Le Monnier & Cochet, 1844.
De Lara & De Salomos, 2107.
Smith (*Alliger*), 2246.

**Advertising—*cont.***

De Lara, 2330.
Hunt (*Wells & Zell*), 2915.
Spong, 3020.
Evans, 3293.

**Aërated liquid bottles:**

Bonneville (*De Mestre*), 174.
Aylesbury, 248.
Trotman, Turner & Ryves, 720.
Helie (*Brosse*), 882.
Allix & Gardner, 916.
Prudencio & Cotterell, 975.
Woolley & Woolley, 1283.
Woolley, 1284.
Michaelis (*Becker*), 1566.
Michaelis (*Becker*), 1567.
Bolt, 1651.
Brown, 1704.
Bonneville (*Sprent & Rostaing*), 1785.
De Negroni, 2198.
Bonneville (*De Mestre*), 2211.
Trotman & Price, 2611.
Codd, 2621.
Tapp, 2634.
France, 3026.
Worthington, 3149.
Bruce & Foureur, 3631.
Vallet, 3828.

**Aërating; filling and withdrawing aërated liquids:**

Johnson (*Joannon*), 526.
Helie (*Brosse*), 882.
Johnson (*Joannon*), 971.
Muschamp, 1040.
Russell, 1485.
Johnson (*Durafort*), 1495.
Clarke, 2209.
Hamilton & Paterson, 3078.
Bruce & Foureur, 3631.
Kriéger & Cauderlier, 3887.

**Aërial aspirators.** *See* "Flues."

**Aërial-machines:**

Brown, 411.
Soul (*Haenlein*), 821.
Duthu, 3076.

**Aëro-electric thermometers.** *See* "Thermometers."

**Ageing woven fabrics.** *See* "Finishing."

**Air and gas engines; pneumatic motive-power:**

Higginson, 202.
Burr (*Prall*), 253.
Lake (*Foster*), 387.
Lake (*Brayton*), 432.
Wright, Broom & Bruce, 654.
Neill, 906.
Holmes, 923.
Palmer (*Errani & Anders*), 1126.
Göransson, 1155.
Teal, 1190.
Clark (*Lewis*), 1210.
Lake (*John*), 1332.
Hammant, 1338.

**Air and gas engines, &c.—*cont.***

Jensen (*Erichsen & Maardt*), 1423.
De Mignot & Ganter, 1481.
Eckhold, 1547.
Newton (*De Bisschop*), 1594.
Tommasi, 1738.
Lake (*Harris*), 1783.
Johnson (*Lemaire & Sonnois*), 1791.
Maddison, 1798.
Taylor, 1832.
Russ, 1964.
Easton & Tattersall, 2086.
Cole & Acton, 2091.
Mills (*Bennett*), 2263.
Young, 2293.
Church, 2469.
Plessner, 2525.
Jones, 2595.
Hamilton, 2685.
Rand, 2748.
Newton (*Leavitt*), 2784.
Davies, 3012.
Johnson (*Rand & Waring*), 3125.
Brown (*Colladon*), 3126.
Robertson, 3134.
Lake (*Schmitt*), 3228.
Lake (*Critchlow*), 3229.
Hurd & Simpson, 3241.
Lake (*Mekarski*), 3338.
Stanley, 3409.
Hughes (*Errani & Anders*), 3461.
Ball, 3491.
Church, 3555.
West, 3562.
Haseltine (*Goodrich*), 3641.
Hamilton, 3738.
Gedge (*De Kercado*), 3766.
Vagnolini, 3806.

**Air as applied in cooling slag.** *See* "Cooling slag."

**Air as applied in drawing liquids from casks:**

Gaskell, 190.
Ray (*Perrellon*), 1806.
Smith, 2108.

**Air as applied in elevating corn, grain or seed:**

Vogan, 2060.
Mc Farlane, 2516.

**Air as applied in indicating speed of trains:**

Hunt (*Schols*), 1004.

**Air as applied in regulating supply of water:**

Preston, Prestige, Preston & Prestige, 1488.

**Air carburetting.** *See* "Carburetting air."

**Air-proof fabrics:**

Macintosh & Boggett, 137.
Macintosh & Boggett, 2554.

**Air pumps; air exhausters; compressing air:**

Giffard, 21.
Paraire, 125.
Paraire, 126.
Burr (*Prall*), 253.
Lake (*Brayton*), 432.
Fletcher, 549.
Westinghouse, jun., 595.
Wright, Broom & Bruce, 654.
Westinghouse, jun., 953.
Teal, 1199.
Westinghouse, jun., 1226.
Lake (*John*), 1332.
Hammant, 1338.
Macneill, 1353.
Perkins, 1389.
Jensen (*Steinbrenner*), 1474.
Goodfellow, 1487.
Richardson, 1488.
Foulis, 1532.
Soul (*Neuerburg*), 1556.
Newton (*Dod*), 1658.
Robertson, 1675.

**Air pumps, &c.—*cont.***

Carey, 1687.
Westinghouse, jun., 1691.
Lake (*Harris*), 1783.
Maddison, 1798.
Abate, 1853.
Robertson (*Robertson*), 1982.
Thomson & Thomson, 2056.
Easton & Tattersall, 2086.
Cole & Acton, 2091.
Simpson & Hurd, 2106.
Richardson, 2309.
Church, 2469.
Varnaison, 2508.
Hamilton, 2685.
Rand, 2748.
Newton (*Leavitt*), 2784.
Hill, 2839.
Abel (*Orlowski*), 2883.
Davies, 3012.
Steel, 3041.
Brown (*Colladon*), 3126.
Alison, 3163.
Davey, 3208.
Prince (*Schlamp*), 3332.
Lake (*Mekarski*), 3338.
Stanley, 3409.
Prall, 3410.
Newton (*Dod*), 3588.
Brookes (*Hoevelmann*), 3700.
Shedlock & Shedlock, 3728.
James, 3771.
Vagnolini, 3806.
Williamson & Walker, 3912.

**Air supplying beneath the hulls of ships:**

Lyttle, 1321.

**Air supplying in dressing and treating flour and grain:**

Johnson (*Wells*), 1382.
Johnson, 1455.
Johnson (*Cabanes*), 1944.
Davies & Dawson, 1995.
Clark, 2031.
Benson (*Howes, Babcock, Babcock & Ewell*), 2192.
Tomlinson, 2691.
Smyth & Ramsay, 2752.
Smith, 2862.
Render, 2960.
Whittingham, 3610.
Benson (*Huntly, Holcomb & Heine*), 3705.

**Air supplying in drying agricultural produce:**

Gibbs & Borwick, 314.

**Air supplying in manufacturing processes:**

Thomas, 217.
Gibbs & Borwick, 314.
Monckton, 423.
Barraclough & Barraclough, 441.
Richardson, 456.
Hamer, 630.
Lancaster & Bullough, 683.
Lake (*Hail*), 717.
Rigod, 983.
Fish, 1362.
Ransome (*Richards*), 1501.
Harrison & Harrison, 1679.
Harrison & Harrison, 1708.
Newton (*Turner & Vanderpool*), 1905.
Chatwood & Collins, 1954.
Caillot, 2036.
Abel (*Marcus*), 2058.
Cook & Lafone, 2069.
Haseltine (*Fogarty*), 2296.
Moore, 2351.
West (*Du Bois*), 2410.
Emmens, 2453.
Henry (*Pinel & Lecœur*), 2500.
Harrison (*Harrison, Bros., & Co.*), 2532.
Newton (*Hoe*), 2561.
Robertson, 2586.
Smyth & Ramsay, 2752.
Harrison & Harrison, 2847.
Fisher, 2976.

**Air supplying, &c.—*cont.***

Shedlock, 3057.
Walker, 3093.
Vaughan (*Dubois*), 3192.
Weems, 3254.
Grether, 3290.
Norton, 3443.
Hills & Biggs, 3464.
Harrison & Harrison, 3473.
Howland & McKnight, 3562.
Price & Saniscovsky, 3517.
Shedlock & Shedlock, 3728.
Hart & Hart, 3734.
Simon & Simon (*Sommerfeld*), 3863.

**Air supplying in raising and sinking caissons:**

Cunningham, 2132.

**Air supplying in raising wrecks or vessels:**

Pullar, 2242.

**Air supplying in signalling:**

Zimdars, 553.
Westinghouse, jun., 595.
Wier, 711.
Westinghouse, jun., 953.
Lake (*Myers*), 1452.
Westinghouse, jun., 1691.
Fielding, 2301.
Macneill, 2390.
Zimdars, 3340.
Jaynor, 3735.

**Air supplying in sugar refining:**

Lake (*Morrell*), 680.

**Air supplying or ventilating.** *See* "Ventilating."

**Air supplying to axle-boxes:**

Beattie, 2096.

**Air supplying to furnaces, forges, stoves, ranges, flues and kilns:**

Irving, 11.
Johnson (*Sellers & Sellers*), 50.
Montgomerie, 79.
Healey, 85.
Kent, 90.
Schemioth, 94.
Whitwell, 171.
Bonneville (*Furon*), 237.
Newton (*Morgan*), 266.
Woods, 277.
Williams, 303.
Jarman & Mitchell, 338.
Sutherland, 385.
Billing, 391.
Powers, 653.
Wright, Broom & Bruce, 654.
Barnett & Vokins, 798.
Stevenson, 870.
Dilnutt, 932.
Johnson (*Ponsard Metallurgical Society*), 1018.
Mills, 1038.
Brewer (*Baker*), 1065.
Paris, 1146.
Wilson, 1174.
Pollock & Mitchell, 1200.
Eagles (*Bergehausen, Philipps & Kiesling*), 1263.
Johnson (*Wilson*), 1302.
Parks, 1366.
Mills (*Demeure*), 1384.
Johnson (*Ponsard Metallurgical Society*), 1409.
Crabtree, Messrs., 1416.
Sutherland, 1432.
Jaynor & Low, 1467.
Waddington & Garaide, 1484.
Berry, 1498.
Wood, 1542.
Johnson, 1583.
Hughes (*Bicheroux*), 1598.
Lake (*Brindle*), 1666.
Hollick, 1672.
McKenzie, 1681.
Charpentier, 1720.
Harrop & Corbett, 1723.

**Air supplying, &c.—*cont.***

Holt, 1725.
Haseltine (*Middleton*), 1801.
Perry, 1821.
De Chodzko, 1823.
Davis, 1869.
Smith & Willans, 1876.
Vaughan (*Franklin*), 1902.
Townsend, 1914.
Edwards (*Thornton*), 1969.
Robertson (*Robertson*), 1982.
Newbold, 2011.
Gorman, 2017.
Stewart & Defty, 2020.
Jensen (*Hoegaard*), 2022.
Downes, 2066.
Fern, 2088.
Bartle (*Bartle*), 2116.
Ashwell, 2134.
Smeaton, 2159.
Lake, 2168.
Knott (*Speakman*), 2171.
Goold, 2182.
Hutton, 2184
Warren, 2358.
Harrison, 2371.
Newton & Price, 2402.
Haseltine (*Bantz*), 2440.
Lake (*Harding*), 2443.
Newton (*Tissot*), 2466.
Truswell & Holden, 2477.
Johnson (*Ponsard Metallurgical Society*), 2480.
Vincent, 2510.
Frickinger, 2527.
Ellefsen, 2534.
Bryce, 2548.
Lake (*Knowles & Saunders*), 2571.
Thomas, 2575.
Dillon, 2594.
Broadbent, 2601.
Torr & Johnstone, 2642.
Ramsden, 2650.
Lockhart, 2659.
Lewis, 2664.
Withy & Gibson 2672.
Mines, 2733.
Lake (*Briggs*), 2741.
Gibbs, 2742.
Edes, 2774.
Stone, 2790.
Young & Brash, 2823.
Abel (*Orlowski*), 2883.
Campbell, 2910.
Nicholson & Skinner, 2931.
McColl & Gillespie, 2939.
Aitken, 2948.
Meyer, 2951.
Cochrane, 2955.
Kenyon, 2972.
Corry, 2981.
Ferrie, 3008.
Preston, 3010.
Morris, 3029.
Hargreaves & Robinson, 3052.
France, 3060.
Newton (*Walter*), 3142.
Bateman, 3185.
Macfarlane, 3196.
Head & Brown, 3197.
Bolton, 3240.
Longridge, 3259.
Parks, 3260.
Belleville, 3284.
Horton, 3286.
Looker, 3291.
Kiesling, 3302.
Smith, 3313.
Bonneville (*Avril*), 3317.
Wilson, 3347.
Scott, 3355.
Verrier, 3375.
Clark (*Gold*), 3397.
Hahn, 3417.
Blyth, 3423.
Blocksage, 3431.
Gedge (*Palau*), 3465.
Ensor, jun., 3570.
Young, 3574.
Knott, 3622.
Bacon, 3635.
Longden, 3640.
Siemens, 3642.
Smith, 3667.
Brookes (*Heevelmann*), 3700.

**Air supplying, &c.—*cont.***

Toller & Smyth, 3711.
Smith, 3717.
Newton, 3798.
Baker, 3807.
Symington, 3880.
Prideaux, 3898.
Rydill, 3901.
Rydill, 3938.

**Air-supplying to hydro-extractors or centrifugal machines:**

Rydill, 3979.

**Air supplying to lamps and burners:**

Murdoch (*Maroni*), 275.
Bonneville (*Allen & Dewey*), 375.
Tandy & Dryden, 648.
Farquhar, 727.
Bradford, 763.
Wigham, 1015.
Mills, 1038.
Lake (*Myers*), 1202.
Doty & Gardner, 1253.
Porteous & Bruce, 1645.
Harvie, 1915.
Phillips, 1956.
Wallace, 1999.
Gorman, 2017.
Caillot, 2036.
Imray (*Denayrouze*), 2142.
Linwood, 2203.
Silver, 2350.
Rippingille, 2604.
Bernard, 2968.
Blackburn, 3253.
Plimsoll, 3274.
Harrison, 3523.
Tandy & Stroudley, 3540.
Benson (*Irwin*), 3695.
Simon & Simon (*Sommerfeld*), 3863.
Holt, 3869.
Mackinnon, 3951.

**Air supplying to miners for respiration:**

Imray (*Denayrouze*), 2142.

**Air supplying to musical instruments:**

Haseltine (*Woods*), 2321.
Oldroyd, 2359.

**Air supplying to ships' cargoes:**

Anderson, 729.

**Alarms.** *See* "Signals."

**Albums:**

Lanteigne, 848.

**Alcohol:**

Johnson (*Leconte*), 404.
Johnson (*Joannon*), 526.
Gibou, Dusart & Bardy, 812.
Hollefreund, 880.
Garton, 899.
Johnson (*Joannon*), 971.
Newton (*Thompson & Olson*), 1145.
Lake (*Cavayé*), 1586.
Lake (*Benardaki*), 3086.
Lake (*Kersting*), 3737.
Johnson (*Leconte*), 3956.

**Alcoholmeters:**

Nicholls, 3137.

**Ale and beer.** *See* "Brewing."

**Alkalies and alkaline salts:**

Johnson (*Blondin*), 103.
Warner, 189.
Burgess, 358.
Weldon, 359.
Gibb & Gelstharp, 407.
Deans & MacNaughton, 453.
Hargreaves & Robinson, 509.
Königs, 571.

**Alkalies, &c.—*cont.***

Gedge (*Salmon*), 626.
Lee, 694.
Scott, 849.
Young, 868.
Henderson (*Chapusot*), 926.
Fitz Gerald & Molloy, 1376.
Gossage, 1442.
Monckton, 1460.
Christy, jun., & Bobrownicki, 1492.
Solvay, 1525.
Weldon, 1539.
Stevenson, Carlile & Stevenson, 1695.
Faure, 1742.
Morgan-Brown (*Elwert & Pack*), 1880.
Dale, 2137.
Dufrené (*Faure & Kessler*), 2205.
Milburn & Jackson, 2266.
Browne (*Storck, Hentsch, Hentsch, Lutscher & Grininger*), 2286.
Packard, jun., 2328.
Morfit, 2341.
Morfit, 2344.
Moore, 2351.
Morfit, 2357.
Arrott, 2446.
Scott, 2538.
Gerland (*Messrs. Albert*), 2614.
Hargreaves & Robinson, 2704.
Ruck, 2711.
Hughes (*Daudenart & Verbert*) 2746.
Hargreaves & Robinson, 2962.
Ungerer, 2985.
Young, 2988.
Young, 2989.
Hargreaves & Robinson, 3052.
Price, 3095.
Fairlie, 3103.
Target, 3215.
Kiesling, 3302.
Hills & Biggs, 3464.
Lyte (*Storck, Hentsch, Hentsch, Lutscher & Grininger*), 3585.
Best, 3687.
Sinclair, 3716.
Scott, 3755.
Holker, 3851.
Higgin & Stenhouse, 3949.

**Alkalies (packing and carrying):**

Lake (*Seibert*), 525.

**Alloys of metals.** *See* "Metals (smelting)."

**Alphabetical arrangement of letters, papers and documents:**

Keyworth, 1097.
Johnson (*Chamoüin*), 2714.
Morgan-Brown (*Amberg*), 3220.

**Alumina and its compounds:**

Rich, 547.
Perkins, 642.
Rich, 1243.
Brown, 1393.
Dufrené (*Faure & Kessler*), 2205.
Morfit, 2341.
Morfit, 2344.
Morfit, 2357.
Lyte (*Storck, Hentsch, Hentsch, Lutscher & Grininger*), 3552.
Lyte (*Storck, Hentsch, Hentsch, Lutscher & Grininger*), 3585.

**Ambulance mattresses.** *See* "Upholstery."

**Ammonia.** *See* "Alkalies."

**Anatomy (preserving substances for):**

Barlow (*Rousseau, jun., & Cochard*), 464.

**Anchors; anchoring:**

Lake (*Thomson*), 32.
Saunders, 278.
Harfield, 483.

Anchors; anchoring—*cont.*
Smith, 634.
Betteley, 1096.
Martin & Martin, 1632.
Thomson, 2413.
Tenwick, 3401.

Anchors for land tillage. *See* "Ploughing."

Angle iron:
Bleckly, 847.
Berry & Berry, 2345.
Askham, 3526.

Angles on charts, maps, plans, &c. (measuring):
Ramsten, 2852.

Animal oils. *See* "Oils (animal)."

Animals (protecting):
Douglass, 2628.

Annealing boxes, pots or pans:
Bytheway, 1182.
Hibell, 1624.

Anthracene. *See* "Oils of tar."

Antimony:
Johnson (*Ponsard Metallurgical Society*), 426.

Antiseptics:
Barnett & Slade, 2913.
Barnett & Slade, 2934.

Arches. *See* "Bridges."

Architraves. *See* "Mouldings, &c."

Areometrical balances:
Lake (*Benardaki*), 3086.

Armlets:
Drinkwater, 2625.

Armour; armour plates:
Cooke, 123.
Lake (*Caumon* (*Abeterdam*)), 1135.
Muratori, 1588.
Schneur, 3178.
Henry (*Ehrmann*), 3692.

Arsenic; arsenical salts:
Monckton, 1460.
Todd, 2035.
Higgin & Stenhouse, 3949.

Artificial flowers. *See* "Flowers."

Artificial gems or stones. *See* "Gems."

Artificial stone and marble. *See* "Stone."

Artificial teeth. *See* "Dentistry."

Asbestos; amianthus:
Fish, 6.
Fish & Wotherspoon, 7.
Racey & Young, 498.
Fletcher, 549.
Lochhead, 2518.
Fish, 2671.
Fish, 2715.
Symington, 3880.

Asphalte; carrying asphalte:
Lyttle, 31.
Nussey, 367.
Jupp, 417.
Chadwick, 539.
Johnson (*Robin & Malo*), 610.
Croskey, 966.
Norris, 1031.
Norton, 1149.
Norton, 1151.
Lyttle, 1264.
Finlay, 1830.

Asphalte—*cont.*
Croskey, 1533.
Norton, 1662.
Tucker, 1669.
Lyttle, 1814.
Parlour, 2014.
Lake (*Smith*), 2065.
Bennett & Watt, 2276.
Probert, 2398.
Emmens, 2451.
Lyttle, 2463.
Sebille, 2491.
Fottrell, 2881.
Prince (*Barthel, Capitaine & Holzmann*), 3886.
Copland, 3925.

Autographic telegraphs. *See* "Telegraphs."

Awls:
Bousfield (*Heaton*), 1591.
Morgan-Brown (*Lambart*), 1859.

Awnings and canopies:
Fish & Wotherspoon, 7.
Lake (*Morris*), 162.
Hammond (*Petot & Salmon*), 622.
Guttman, 1057.
Webb, 2080.
Percy, 2082.

Axes:
Johnson (*Nes*), 325.
Lake (*Date & Date*), 1088.
Haseltine (*Alexander*), 2282.

Axles; axle-boxes; stuffing-boxes:
Fish, 6.
Newton (*Mettam & Sanson*), 46.
Clark (*Doty, Miltimore, Mickel & Mickel*), 220.
Walker, 613.
Lake (*Croll, Barrett & Plush*), 909.
Newton (*Gwynn, Gilbert & Barnes*), 995.
Nicholson, 1021.
Clarke, 1100.
Russell, 1274.
Lake (*John*), 1332.
Hunt (*Garnier & Hessenland*), 1380.
Ley & Pinker, 1401.
French, 1415.
Messenger, 1545.
Lake (*Rueff*), 1553.
Colby, 1727.
Clark (*Eggleston*), 1749.
Johnson (*Harrison, jun.*), 1758.
Zamoyski & Jackson, 1782.
Roberts (*Robertson*), 1982.
Lake (*Meneely*), 2050.
Marchant, 2068.
Beattie, 2096.
Nicholson, 2104.
Blair, 2140.
Knott (*Speakman*), 2172.
Dufrené (*Perrot*), 2234.
Rieber, 2249.
Boyden, 2304.
Clark (*Sidebotham*), 2338.
Church, 2469.
Fish, 2671.
Abel (*Orlowski*), 2883.
Johnson (*Wheeler*), 3130.
Glover, jun., 3150.
Edwards, 3166.
Roberts, 3230.
Hornby, 3445.
Zamoyski & Jackson, 3458.
Bass, 3499.
Hadfield, 3524.
North (*Tomlinson*), 3541.
Newton (*Sloot*), 3606.
Robertson, 3665.
Spencer & Scott, 3694.
Hamilton, 3704.
Nicholson, 3730.
Hamilton, 3738.
Lones, Lones, Vernon & Holden, 3884.
Spencer & Smith, 3964.


## B.


Bacon (curing). *See* "Preserving food."

Bagatelle. *See* "Billiards."

Bags; reticules; sacks; satchels; fastening the mouths of sacks, &c.:
Dee, 127.
Lake (*Crossdale*), 148.
Dee, 160.
Oldroyd, 364.
De Negri, Herrmann & Guest, 736.
Anderson, 756.
Don & Wright, 970.
Lüttringhaus, 1102.
Gedge (*Tourenc*), 1120.
Henson & Poole, 1424.
Pichery, 1523.
Pullar, 2242.
Williamson & Hitchin, 2465.
Chaine, 2486.
Ley & Pinker, 2609.
Zahn, 2738.
Pfeiffer (*Huppe & Bender*), 3482.
Ford, 3553.
James, 3934.

Baking-powders (packing):
Hemingway, 3465.

Balconies. *See* "Buildings."

Bale ties. *See* "Hoops."

Balling thread. *See* "Winding."

Balloons. *See* "Aërial-machines."

Ballot apparatus. *See* "Voting."

Balls (administering to horses). *See* "Medical treatment of animals."

Balustrades; balusters:
Tuddenham, 3762.

Bandages. *See* "Medical treatment."

Bands and belting for machinery; mending belts:
Baker, 287.
Walker, 331.
Lawson & Fitton, 568.
Don & Wright, 970.
Henson & Poole, 1424.
Rowat, 1578.
Bousfield (*Heaton*), 1591.
Hodgson, 1719.
Scott, 2376.
Mudford, 2582.
Binns, 3238.
Quin, 3932.

Bands and rods for machinery (substitutes for):
Newton (*Closson*), 274.

Banks. *See* "Embankments."

Banner-screens. *See* "Fire-screens."

Bark (disintegrating). *See* "Grinding bark."

Bark (drying):
Alloway, 2138.

Barrels. *See* "Casks."

Barricades. *See* "Batteries."

Barrows:
Cockburn (*Barr*), 3429.

**Barytes:**
Clark (*Pollock*), 1934.
Owen & Underwood, 2109.
Dufrené (*Faure & Kessler*), 2205.
Hughes (*Daudenart & Verbert*), 2745.
Hughes (*Daudenart & Verbert*), 2746.
Cobley & Poynter, 3194.

**Baskets and skips:**
Morgan, 636.
Ashton, 1390.
Glazier, 3278.

**Baskets (work).** *See* "Work baskets."

**Basting food.** *See* "Cooking."

**Batching jute.** *See* "Spinning (opening)."

**Baths and bath appliances:**
Gowans, 87.
Cunningham & Corbin, 361.
Henman, 396.
Darlow, 888.
Don & Wright, 970.
Darlow, 1334.
Costa & Lawrie, jun., 1593.
Darlow, 1665.
Phillips, 1956.
Lake (*Chèradame, Le Dreux & Oursel*), 2053.
Chandler, 2090.
Lyttle, 2212.
Abbott, 2243.
Tylor, 2292.
Lockhart, 2659.
Turton, 2678.
Boyle, 2875.
Jones & Wyatt, 3122.
Lee, 3277.
Smith, 3313.
Abel (*Booroff*), 3788.

**Batteries; fortifications; barricades:**
Henderson, 514.
Longsdon, 787.
Lake (*Caumon* (*Absterdam*)), 1135.
Muratori, 1588.
Desmolins, 2189.
Douglas, 2613.
Schneur, 3178.
Stapleton, 3753.
Allan, 3761.
Harman, 3825.
Rendel, 3826.

**Beaming machines.** *See* "Warping."

**Beams and girders:**
Lake (*McLeod*), 443.
Cottam, 458.
Walker & Ragon, 1288.
Hobbs & Hart, 1611.
Broughton, 2380.
Broughton, 2438.
De Carvalho 2808.
Glazier, 3278.
Lloyd, 3638.
Smith, 3657.

**Bearings, journals and steps:**
Lake (*Hitchcock*), 405.
Scott, 658.
Taylor, 667.
Lake (*Croll, Barrett & Plush*), 909.
Robson, 947.
Coddington (*Gally*), 1319.
Marshall, 1357.
Hunt (*Garnier & Hessenland*), 1380.
French, 1415.
Lake (*Ruaff*), 1553.
Raymond, 1660.
Clark (*Eggleston*), 1749.
Johnson (*Harrison, jun.*), 1758.
Middleton, 1925.
Parker & Robson, 1947.

**Bearings, &c.—*cont.***
Lake (*Meneely*), 2050.
Cherry, 2147.
Knott (*Speakman*), 2172.
Boyden, 2304.
Clark (*Sidebotham*), 2338.
Haseltine (*Sanderson*), 2435.
Clark (*Wilson & Folk*), 2882.
Lake (*Rice*), 2933.
Lacy, 3224.
Buchanan, jun., 3376.
Clark (*Ritchel & Allen*), 3399.
Marsh, 3408.
Newton (*Stoot*), 3606.
Edwards, 3795.
Perkins, 3845.

**Beating carpets.** *See* "Carpet cleaners."

**Bedsteads.** *See* "Furniture."

**Beer.** *See* "Brewing."

**Beer-engines; spirit pumps:**
Frei & Kember, 686.
Kay & Kay, 1173.
Hill, 3732.

**Beetling fabrics.** *See* "Finishing."

**Bellows.** *See* "Air-supplying to furnaces."

**Bells; ringing bells; bell wire:**
Handcock, 16.
Lake (*Allen*), 163.
Wood, 211.
Glasspool (*Glasspool*), 276.
Wheatstone & Stroh, 473.
Wier, 711.
Graham, jun., 807.
Owen, 886.
Rossignol, 990.
Morgan, 1099.
Lake (*Myers*), 1452.
Sanderson, 1569.
Russell & Sax, 1731.
Lester, jun., 1756.
Gilbert, 1753.
O'Neill, 2062.
Chambers, 2103.
Stanley, 2213.
Walker (*Rainbow*), 2216.
André, 2312.
Owen, 2815.
Dick & Dick, 2827.
Parkin, 3023.
Jones, 3287.
Zimdars, 3340.
Evans, 3666.
Jaynor, 3735.
Spencer, 3804.

**Belts and bands for wear:**
Edwards, 102.
Bell, 362.
Darlow, 888.
Darlow, 1334.
Darlow, 1665.
Palmer (*Lacrux*), 2183.
Hayward, 2996.
Parker, 3159.
Darlow, 3221.
Walker, 3256.
Jones, 3380.
Kennedy, 3867.

**Belts for machinery.** *See* "Bands."

**Beton.** *See* "Cement."

**Bill and letter cases:**
King, 1515.

**Billiards; bagatelle; billiard tables:**
Telfer, 1030.
Hawkes & Freeman, 1633.
Russell & Sax, 1731.
Stevens & Cullum, 2726.

**Binding books.** *See* "Book-binding."

**Binnacles:**
Low, 33.

**Bins for wine or other bottles.** *See* "Bottle racks."

**Bird cages:**
Henley, 2627.

**Bird traps.** *See* "Traps."

**Biscuit boxes.** *See* "Boxes."

**Bits.** *See* "Harness."

**Bitumen.** *See* "Asphalte."

**Blacking:**
Letchford & Nation 890.

**Blacking for metal founders:**
Sellars, 989.

**Black-work (screwing):**
Barrow, 3199.

**Blasting fuses and priekers used in blasting:**
Cranston, 143.
Poch, 656.
Froitzheim, 1509.
Horsley, 1885.
Downing, 1975.
James, 2298.
Newton (*Norrbin & Ohlsson*), 2766.
Osborn, 3929.

**Bleaching fabrics, fibres and yarns:**
Rydill, 370.
Whyte, jun., 845.
Worrall, 1024.
Clark (*Bastaert*), 1245.
Fitz Gerald & Molloy, 1376.
Van Baerle, 1851.
Taylor, 1904.
Paterson & Messrs. Sanderson, 2153.
Rydill, 2274.
Duffaud & Frear, 2797.
Wilkinson, jun., Fillingham & Pardoe, 2961.
Weatherdon (*Palliser, McDowell, Klopsk & Grumel*), 3231.
Deacon, 3309.
Wilkinson, jun., Fillingham, Pardoe & Glover, 3597.
Fillingham & Pardoe, 3669.

**Bleaching grain and seeds:**
Johnson, 1455.

**Bleaching paper and pulp:**
Whyte, jun., 845.
Lowe, 965.
Fitz Gerald & Molloy, 1376.
Menzies & Davies, 1476.
Riddell, 1690.
Deacon, 3309.

**Blinds or sunshades.** *See* "Window-blinds."

**Blocks for cutting or chopping.** *See* "Cutting or chopping."

**Blocks for printing.** *See* "Printing."

**Blotting paper:**
De Lara & De Salomos, 2107.
De Lara, 2330.

**Blow pipes:**
Cook & Lafone, 2069.
Harper, 3233.
Kennelly, 3866.

**Blowing engines; fans:**
Higginson, 202.
Wright, Broom & Bruce, 654.
Lancaster & Bullough, 683.
Gedge (*Chevallier*), 1255.
Ransome (*Richards*), 1501.

**Blowing engines, &c.—*cont.***
Foulis, 1532.
Holt, 1725.
Lake (*Harris*), 1783.
Schlesinger (*Schlesinger*), 2049.
Lake (*Chéradame, Le Dreux & Oursel*), 2053.
Johnson (*Neseroux*), 2054.
Knott (*Speakman*), 2171.
Mills (*Bennett*), 2283.
Crowther, 2290.
Michelet, 2322.
Brakell, 2956.
France, 3060.
Hughes (*Errani & Anders*), 3481.
Easton & Tattersall, 3624.
Taylor, 3725.
Bullough, 3770.
Williamson & Walker, 3912.

**Blowing or forcing gases.** *See* "Forcing air."

**Boats.** *See* "Ship-building."

**Bobbins; spools; cop tubes:**
Gilmore, 29.
Bash, Bash & Bash, 53.
Wilkinson, 371.
Lancaster & Bullough, 663.
Brode & Brode, 804.
Mackley, 1325.
Brook, 1399.
Barlow (*Renard*), 1613.
Hunter & McCloy, 2661.
Laycock & Shuttleworth, 3303.
Stiff, 3321.
Johnson (*Dodge*), 3619.

**Boiler and other waste plates (utilizing):**
Rose, 751.

**Boilers (bleachers'):**
Whyte, jun., 845.

**Boilers (domestic and portable):**
Wilson, jun., 1098.
Edwards (*Blessing, Townsend & Jackson*), 1139.
Fearnley, 1461.
Messenger, 1545.
Hartley & Sugden, 1698.
Hartley & Sugden, 1910.
Morgan-Brown (*Houghton*), 2268.
Clarke, 2629.
Thornton, 2778.
Sims & Holmes, 3042.
Smith, 3313.
Bewley, jun., 3363.
Camroux, 3950.

**Boilers (horticultural):**
Edwards (*Blessing, Townsend & Jackson*), 1139.
Messenger, 1545.
Hartley & Sugden, 1698.
Hartley & Sugden, 1910.
Whittle, 2901.
Sims & Holmes, 3042.
Bewley, jun., 3363.

**Boilers (papermakers', &c.):**
Roeckner & Lunge, 463.
Whyte, jun., 845.
Stevenson, 1008.
Cowper, 1265.
McFarlane, 1779.
Routledge, 2451.

**Boilers (steam-engine).** *See* "Steam-boilers."

**Boilers (stopping holes in):**
Wood, 600.

**Boilers (sugar):**
Jarman & Mitchell, 336.
Newton (*Dod*), 1658.
Newton (*Dod*), 3586.

**Boilers used in gas making:**
Lafrogne, 994.

**Boilers used in obtaining ammonia from and treating sewage:**
Gedge (*Salmon*), 636.
Fereday, 3882.

**Boilers used in salt making:**
Bull, 1845.

**Boiling pans for treating bones and other articles or materials:**
Green, 3696.

**Bolts; bolt extractors:**
Wright, Broom & Bruce, 654.
Müller (*Noot*), 1639.
Arthur, 1884.
Lake (*Bell*), 2130.
Lake (*Bell*), 2131.
Towle (*Pratt*), 2305.
Boeklen, 2903.
Brewer (*Le Blanc & Vincent*), 2925.
Cox, 2963.
Barrow, 3199.
Clark (*Allen & Ritchel*), 3338.
Bourne, 3471.
Edmeston, 3729.

**Bones; horn; ivory; tortoise-shell (natural and artificial):**
Cunningham, 55.
Greenhill, 131.
Jupp, 417.
Abel (*Ville*), 958.
Davey, 1443.
Shanks, 1771.
Birch, 1879.
Allison, 3320.
Birch, 3503.
Green, 3696.

**Bonnets.** *See* "Hats, &c."

**Bookbinding; mechanical binders:**
Birdsall, 382.
Brode & Brode, 804.
Lanteigne, 848.
Lake (*Andrews, Clague & Randall*) 855.
Don & Wright, 970.
Phillips, 1956.
Lauranson (*Toiray-Maurin*), 2479.
Carwood, 2935.
Macintosh & Boggett, 2947.
Haseltine (*Shedd*), 2994.
Morgan-Brown (*Amberg*), 3220.
Grosvenor, 3447.

**Books; diaries; book supports; leaf turners:**
Newton (*Gateuil*), 366.
Lock, 806.
Perkins, 1389.
De Lara & De Salomos, 2107.
De Lara, 2330.
Mudge, 2731.

**Boomerangs:**
Sparrow & Spencer, 723.

**Boots, shoes, slippers, goloshes, clogs and boot jacks:**
Fish & Wotherspoon, 7.
Lake (*Morris*), 163.
Hollingworth, 229.
Lake (*Blake*), 264.
Parker-Rhodes, 309.
Lamb, 377.
Clark (*Sheffield & Mellor*), 399.
Lake (*Mills & Taylor*), 500.
Hunt (*Simonds*), 529.
Hughes (*Baldwin*), 590.
Hodges, 753.
Dove, 759.
Lake (*Coté & Seymour*), 769.
Palliser, 775.
Lake (*Richardson & Hacker*) 786.
Marshall, 834.
Johnson (*Goodyear, jun.*), 996.
Gedge (*Vigneau*), 1119.
Smyth, 1151.
Clark, 1138.
Alekan & Alekan, 1141.

**Boots, &c.—*cont.***
Lake (*Richardson, Hacker & Blake*, 1175.
Condie, 1237.
Lewis, 1247.
Cases, 1252.
Southall, 1308.
Johnson (*Mills & Taylor*), 1470.
Lake (*Chéradame, Zarzecke & Oursel*), 1667.
Clark (*Huet*), 1676.
Morgan-Brown (*Lambert*), 1859.
Downing, 1975.
White, 1978.
Gedge (*Brunel*), 1985.
Jenkins, 2148.
Whittemore (*Landfear*), 2311.
Daft, 2411.
Kenny, 2637.
Bousfield (*Heaton*), 2707.
Morgan-Brown (*Keith*), 2735.
Morgan-Brown (*Brooks*), 2736.
Manfield, 2793.
Franklin, 2825.
Perron & Bonnardot, 2871.
Southall, 2918.
Baylis, 2993.
Gedge (*Vigneau*), 3021.
Clark, 3055.
Blakey, 3267.
Parlin & Turner (*Ryerson*), 3295.
Tebbutt, 3315.
Hughes (*Winslow*), 3434.
Stewart, 3508.
Howe, 3528.
Chambers, 3535.
Oliver, 3623.
Bolton, 3643.
Duncan, 3673.
Salmon, 3943.
Johnson (*Dodge*), 3969.

**Boots and shoes (cleaning):**
Hayman, 1688.

**Bordering fabrics.** *See* "Headings."

**Boring, drilling, rifling and punching metals:**
Hulse, 195.
Russell, 227.
Jones, 343.
Newton (*Thompson*), 506.
Murphy, 559.
Wright, Broom & Bruce, 654.
Tannett, Scott, jun., Craven & Fox, 660.
Jaques & Oakley, 851.
Morgan-Brown (*Fuller*), 986.
Clay, 1014.
Feldtmann (*Bolomin*), 1020.
Tildesley & Barnard, 1029.
James, 1337.
Brookes (*Farjon*), 1355.
Cottrill, 1503.
Holloway, 1561.
Rogers, 1578.
Walton & Jones, 1607.
Bonneville (*Sprent & Rosteing*), 1785.
Lowry, 1856.
Donovan, 2055.
Thomson & Thomson, 2056.
Cherry, 2147.
Millen & Muir, 2549.
Edwards, 2599.
Mason, 2842.
Chancellor, 3015.
Stiff, 3321.
Clark (*Ritchel & Allen*), 3339.
Miller, 3416.
De Latouche, 3468.
Edmeston, 3729.
Hughes (*Mallett Manufg. Co.*), 3832.

**Boring and drilling rock or stone:**
Cranston, 143.
Beaumont & Appleby, 392.
Cope, 692.
Watteau (*François & Dubois*), 1266.
Soul (*Neuerberg*), 1980.
Le Gros (*Silva*), 2008.
Prince (*Von Sparre*), 2059.

**Boring, &c.—*cont.***
Simpson & Hurd, 2106.
Rand, 2748.
Shepherd & Stuckey, 2756.
Johnson (*Rand & Waring*), 3125.
Ball, 3491.
Brydon, Davidson & Warrington, 3507.
Newton (*Tilghman*), 3626.
Soul (*Neuerburg*), 3765.
Brydon, Davidson & Warrington, 3921.

**Boring and drilling wood:**
MacLeod, 2299.
Shedlock (*Shedlock*), 3056.
Clark (*Ritchel & Allen*), 3399.
Brown, 3816.

**Boring machines (mineral):**
Wright, Broom & Bruce, 654.

**Boring soil:**
Jensen (*Mortensen*), 791.

**Bottle cabinets or packages:**
Russ, 2320.

**Bottle racks and bins:**
Burrow & Burrow, 1846.
Jackson, 3427.

**Bottle stoppers and capsules:**
Stocker, 154.
Bonneville (*De Mestre*), 174.
Aylesbury, 246.
Franklin (*Pyne & Maurice*), 332.
Betts, 354.
Betts, 355.
Trotman, Turner & Ryves, 720.
May, 743.
Warburton, 796.
Allix & Gardner, 916.
Prudencio & Cotterell, 975.
Gedge (*Saint-Aubin*), 1047.
Webb, 1225.
Woolley & Woolley, 1283.
Woolley, 1284.
Russell, 1485.
Michaelis (*Becker*), 1566.
Michaelis (*Becker*), 1567.
Bolt, 1651.
Fleming, 1694.
Brown, 1704.
Bonneville (*Sprent & Rostaing*), 1785.
De Negroni, 2198.
Bonneville (*De Mestre*), 2211.
Trotman & Price, 2611.
Codd, 2631.
Tapp, 2634.
Michaelis (*Becker*), 2686.
France, 3026.
Baranowski & Skwarcow, 3034.
Silverlock, 3054.
Hird & Ensor, 3071.
Betts, 3587.
Bruce & Fourcur, 3631.
George (*Mayer*), 3777.
Vallet, 3828.
Kriéger & Cauderlier, 3887.

**Bottles; flasks; decanters; filling and withdrawing from bottles:**
Gilmore, 58.
Lake (*Clarke*), 329.
Perry, 668.
Trotman, Turner & Ryves, 720.
Helie (*Brosse*), 882.
Allix & Gardner, 916
Johnson (*Joannon*), 971.
Long, 1118.
Kay & Kay, 1173.
Woolley & Woolley, 1283.
Woolley, 1284.
Lofts, 1448.
Pichery, 1523.
Clarke, 2209.
Russ, 2320.
Adam, 2879.
Hickman, 2928.
Silverlock, 3054.
Stocker, 3062.
Worthington, 3149.

**Bottles, &c.—*cont.***
Shanks, 3316.
Read, 3372.
Bousfield (*Lewis*), 3415.
Pode, 3430.
Weston, 3708.
Vallet, 3828.
Kriéger & Cauderlier, 3887.

**Bouquets; bouquet holders:**
Richards, Lawrence & Lingard, 1333.
Lewis, 1831.
Lake (*Chèradame, Le Dreux & Oursel*), 2053.

**Bowling green balls.** *See* "Games."

**Box irons.** *See* "Ironing."

**Boxes; chests; cases; packages:**
Geoghegan, 9.
Dominy & Russell, 36.
Warren, 113.
Johnson (*Frazier*), 144.
Rollason & Brough, 172.
Everickx, 260.
Franklin (*Pyne & Maurice*), 332.
Grafton, 341.
Betts, 355.
Elmslie, 704.
Brode & Brode, 804.
Lanteigne, 848.
Keyworth, 1097.
Witty, 1248.
Ducomet (*Legris*), 1272.
Henry (*Poitier & Paillard*), 1336.
Lofts, 1448.
Ricketts, 1556.
Turney, 1838.
Palmer, 1897.
Matthews, 1983.
Elwell & Grove, 2048.
Mattson, 2251.
Mills (*Heyl & Brehmer*), 2261.
Fyfe, 2316.
Russ, 2320.
Williamson & Hitchin, 2465.
Brodie, 2472.
Tongue (*Givry*), 2519.
Tongue (*Gardère, jun.*), 2536.
Drinkwater, 2625.
Osborn, 2764.
Gardner, 2953.
Powles, 3067.
Womersley, 3141.
Bell, 3158.
Glazier, 3278.
Turney, 3305.
Shanks, 3316.
Boutherin, 3573.
Parkins, 3699.
Pidding, 3894.
Henderson (*Anne*), 3900.
Abel (*Lucas*), 3923.
Cornish & Strange, 3960.

**Bracelets:**
Pichery, 1523.
Bidder, Lamb & Scrivener, 2149.
Goss, 3129.
Swain, 3625.

**Braces or suspenders:**
Bousfield (*Heaton*), 2707.
Wells, 2724.
Parker, 3159.
Tebbutt, 3315.

**Brackets:**
Lloyd, 322.
Dubbin, 661.
Mathews, 920.
Perkins, 1389.
Dubbin, 2626.

**Braiding-machines:**
De Negri, Herrmann & Guest, 2158.

**Branding casks, cases, boxes, &c.:**
Geoghegan, 9.
Bryce, 2548.

**Brazing metals (blow pipes used in).** *See* "Blow pipes."

**Bread and biscuits;**
Jarman & Mitchell, 338.
Lake (*Bailey, Goodrich & Locke*), 857.
Hodgson, 976.
Lake (*Cavayé*), 1586.
Truswell & Holden, 2477.
Stone, 2543.
Valleton & Planque, 2783.
Aitken, 2948.
Norton, 3443.
Chiris, 3767.
Koettgen (*Kunstädter*), 3794.

**Breaking or tearing rags.** *See* "Rags."

**Breaking stones.** *See* "Stone breakers."

**Breaks for carriages and railways; stopping trains:**
Galloway, 14.
Sutcliffe, 48.
Gombert, 409.
Smith (*Michaels & Broadwell*), 469.
Bolitho, 592.
Westinghouse, jun., 595.
Palmer, 691.
Lake (*Emery, Doyen & Sparrow*), 770.
Westinghouse, jun., 933.
Heberlein, 1071.
Liddington, 1094.
Barlow, 1147.
Westinghouse, jun., 1226.
Hammant, 1338.
Clark, 1387.
Inray (*Heberlein*), 1508.
Fielding & Duckworth, 1562.
Westinghouse, jun., 1691.
Clark (*Canfield*), 1834.
Imray (*Heberlein*), 1849.
Lynch, 1861.
Westinghouse, jun., 2018.
Renshaw, 2231.
Rieber, 2249.
Fairholme, 2260.
Hamilton, 2685.
Curtis, 2699.
Barker, 2754.
Hughes, 2832.
Abel (*Orlowski*), 2883.
Chapin, 2973.
Ridpath & Sherring, 3167.
Smith (*Delbanco*), 3419.
Porter, 3550.
Osborn & Nicholas, 3564.
Gedge (*Isnard*), 3659.
Newton (*Gloeckner*), 3668.
Burrell & Pullin, 3713.
Cohrs, 3714.
Huddart, 3879.

**Breaks for machinery:**
Gilmore, 29.
Pieper, 153.
Hughes (*Bates, Baker & Ferguson*) 179.
Smyth, 187.
Newton (*Reimann*), 216.
Saunders, 278.
Harfield, 483.
Newton (*Andrews*), 676.
Bousfield (*Herrick*), 1016.
Wilson, 1174.
Hill & Clark, 1193.
Ladelle, 1195.
Bretherick, 1792.
Sissons & White, 1918.
Muir & McIlwham, 2092.
Wade, 2124.
Eddison (*Tatham & Brittin*), 2174.
Whittemore (*Landfear*), 2311.
Wrightson, 2353.
Weston, 2494.
Brookes (*Augsburger Kammgarnspinnerei*), 2498.
Newton (*Whitehill*), 2759.
Boyd, 2936.

**Breaks for machinery, &c.—*cont.***
Walker & Clarke, 3050.
Fisken, 3175.
Brimelow, 3353.
Haseltine (*Manson*), 3601.
Bywater, 3604.
Wade, 3872.
Haseltine (*Bradley*), 3910.
Taylor, Warburton, Taylor & Wadsworth, 3922.

**Breakwaters, sea walls and foreshores:**
Page, 135.
Manico, 1090.
Tucker, 1669.
Cunningham, 2019.
Cunningham, 2190.
Cay, 2471.
Douglas, 2613.

**Breastplates; cuirasses:**
Muratori, 1588.

**Breasts (artificial):**
Taber (*Carrao*), 1133.

**Brewers' pitch (substitute for):**
Werner, 865.

**Brewing and fermenting; treating beer:**
Gibbs & Borwick, 314.
Curtis, 327.
Lake (*Clarke*), 329.
Bell & Walker, 502.
Ellis, 611.
Garton, 899.
Coales, 1013.
Newton (*Thompson & Olson*), 1145.
Barlow (*Naegeli*), 1203.
Turner, 1396.
Smith, 1750.
Abate, 1853.
Johnson (*Nezeraux*), 2054.
Conron, 2180.
Woore & Watt, 2257.
Moore, 2351.
Lane & Onions, 2366.
Williams, 2395.
Steel, 3041.
Hamilton & Paterson, 3078.
Bethell, 3080.
Davison, 3449.
Rydill, 3901.
Johnson (*Leconte*), 3956.

**Bricks, tiles and building blocks:**
Newton (*Morgan*), 266.
Johnson (*Caldwell*), 340.
Lake (*Hotchkiss*), 346.
Wright, Broom & Bruce, 654.
Drevet, 689.
Gregg & Evans, 771.
Payne & Payne, 788.
Spence & Spence, 853.
Croakey, 966.
Derham, 1046.
Norton, 1149.
Norton, 1151.
Pollock & Mitchell, 1200.
Clark (*Larmanjat*), 1218.
Ager, 1235.
Looker, 1397.
Maynard 1436.
Croakey, 1533.
Lake (*Luckenbach*), 1585.
Boone & Herman, 1590.
Gathercole, 1627.
Lake (*Hamilton*), 1655.
Clayton & Clayton, jun., 1664.
Tucker, 1669.
Lodge, 1744.
Maxwell, 1868.
Wrigley, 1882.
Derham & Thairlwall, 1955.
Payne, 2015.
Heath, Evens & Heath, jun., 2125.
Clark (*Simons*), 2187.
Maw, 2360.
Jaynor, 2361.
Harrison, 2371.
Emmens, 2453.
Truswell & Holden, 2477.

**Bricks, &c.—*cont.***
Johnson (*Ponsard Metallurgical Society*), 2480.
Sebille, 2491.
Grainger, 2556.
Bird, 2558.
Douglas, 2613.
Drevet, 2638.
Smith, 2782.
Young & Brash, 2823.
Boynton, 2924.
Tugby, 3049.
Ashwell, 3073.
Anderson, 3110.
McDonald, 3115.
Glazier, 3278.
Basford, 3285.
Gregg, 3426.
Jenner, 3506.
Bodmer & Bodmer, 3557.
Ensor, jun., 3570.
Bacon, 3635.
Heath, Evens & Heath, jun., 3644.
Garbutt, 3679.
Claus, 3758.
Coone (*Houghton*), 3875.
Conniff, 3895.
Rydill, 3901.
Smith, 3915.
Williams, 3919.
McAdam, 3924.
Clark (*Bulmer & Sheppard*), 3935.

**Bridges; viaducts; draw bridges; suspension bridges:**
Kochs, 107.
Lake (*McLeod*), 443.
Gregg & Evans, 771.
Jensen (*Mortensen*), 791.
Smith, 921.
Stone, 1115.
Lake (*Caumon* (*Absterdam*)), 1135.
Fidler, 1157.
Walker & Ragon, 1288.
Jensen (*Steinbrenner*), 1474.
Cunningham, 1532.
Lyttle, 1811.
Kochs, 1865.
Casbay, 2093.
Cunningham, 2132.
Desmolins, 2189.
Scott, 2376.
Johnson (*Clarke, Bonzano & Griffen*), 2701.
Siemens (*Siemens*), 2923.
Riley, 3453.
Helbronner (*Durand*), 3800.

**Bristles:**
Johnson (*Adamson*), 973.
Birch, 1879.
Birch, 3503.

**Bromine:**
Sonstadt, 1054.

**Bronzing, gilding and silvering fabrics, paper, pencils, &c.:**
Lake (*Benton*), 187.
Johnson (*Reckendorfer*), 578.
Ollard & Barrow (*Gottsberger & Tappin*), 1647.
Salmon & Brownhill, 2105.
Grierson & Philips, 3494.

**Brooches:**
Darlow, 1334.
Goss, 3129.
Swain, 3625.

**Brushes; brooms; mops; substitutes for brushes; brush holders:**
Wood, 211.
Wood, 212.
De Tivoli (*Giacomini, jun.*), 221.
Roberts, 622.
Lancaster & Bullough, 683.
Don & Wright, 970.
Johnson (*Adamson*), 973.
Cross & Maggillivray, 1446.
Lofts, 1448.
Norton, 1662.
Shaw & Shaw, 1685.
Hayman, 1688.

**Brushes, &c.—*cont.***
Johnson (*Bly*), 1698.
Telford, 1718.
Bretherick, 1792.
Horsey, 1874.
Birch, 1879.
Schlesinger (*Schlesinger*), 2049.
Brooks, 2146.
Pringle, 2294.
Haseltine (*Osborn*), 2414.
Smith, 2863.
Astrop, 2991.
Towle (*Dodge & Messrs. Welch*), 3373.
Birch, 3503.
Andrews, 3645.
Hughes (*Mallett Manufg. Co.*), 3929.

**Buckets.** *See* "Pails."

**Buckles and clasps:**
Ashcroft, 30.
Bidder, Lamb & Scrivener, 2149.

**Buckles or bale ties.** *See* "Hoops."

**Buffers for railways.** *See* "Railway buffers."

**Building hoists or elevators:**
Lake (*Silver*), 218.
Newton (*Osgood, Storer & Keys*), 576.
Newton (*Andrews*), 676.
Clark (*Patrick*), 902.
Eddison (*Tatham & Brittin*), 2174.
Lake (*Silver*), 2185.
Clark (*Lindenblith*), 2399.
Walker & Clarke, 3050.
Towle (*Dodge & Messrs. Welch*), 3373.
Johnson, Ellington & Harrison, 3650.

**Buildings; strong rooms:**
Stone, 203.
Lake (*Hotchkiss*), 346.
Lake (*McLeod*), 443.
Cottam, 458.
Rust, 567.
Fothergill & Rumble, 666.
Broughton, 669.
Drevet, 689.
Gregg & Evans, 771.
Lake (*Cornell*), 960.
Stone, 1115.
Lake (*Caumon* (*Absterdam*)), 1135.
Walker & Ragon, 1288.
Turner, 1396.
Désgoffe, 1447.
Jensen (*Steinbrenner*), 1474.
Boone & Herman, 1590.
Hobbs & Hart, 1611.
Milroy, 1788.
Castle, 1968.
Thwaites, Fondeville & Bertin, 2004.
Stones & Castle, 2007.
Elwell & Grove, 2048.
Lancaster, 2074.
Chambers, 2103.
Smith (*Alliger*), 2246.
Holmes, jun., 2339.
Jaynor, 2361.
Broughton, 2380.
Broughton, 2433.
Grainger, 2556.
Douglas, 2613.
Drevet, 2638.
Camroux, 2708.
De Carvalho, 2808.
Lasché, 2893.
Browne & Davenport, 3144.
Knott, 3154.
Alison, 3163.
Corpe, 3183.
March, 3312.
Glazier, 3278.
Tall, 3444.
Riley, 3453.
Lloyd, 3538.
Smith, 3657.
Tuddenham, 3762.
Ayres, 3787.
Magnus, 3831.
Stewart, 3860.
Abel (*Lucas*), 3923.

**Bungs:**
Brunskill, 2037.

**Buoys:**
Casbay, 2093.

**Burning lime.** *See* "Cement."

**Burning smoke.** *See* "Smoke prevention."

**Burnishers.** *See* "Polishing."

**Bustles.** *See* "Dresses."

**Busts.** *See* "Sculpture."

**Butter; cooling and sampling butter:**
Newton (*Barre-Pin & Barre-Pin*), 37.
Collett, 1236.
Johnson (*Enault & Co.*), 1951.
Jolliffe, 1979.
Yule, 3124.

**Button holes:**
Lake (*Wood*), 364.
Jackson, 1153.
Lake (*Harper*), 2237.
Kenny, 2637.
Lake (*Wood*), 2781.

**Buttons; studs, &c.:**
Anderson, 756.
Brewer (*Goubet*), 898.
Morisseau, 925.
Alekan & Alekan, 1141.
Smith (*Hess*), 1206.
Player, 1372.
Guay, 1631.
Bousfield (*Heaton*), 2707.
West, 2723.
Brewer (*Segoffin*), 2900.
Goss, 3129.
Welton, 3823.

## C.

**Cabinets (ice).** *See* "Refrigerating."

**Cables for telegraphs.** *See* "Telegraphs."

**Cables for torpedoes.** *See* "Torpedoes."

**Cables or ropes.** *See* "Ropes."

**Cabs.** *See* "Carriages."

**Cachoo (artificial).** *See* "Dyes."

**Caissons:**
Cunningham, 1522.
Kochs, 1865.
Cunningham, 2132.
Allan, 3761.

**Cake dishes.** *See* "Dishes."

**Calcining lime.** *See* "Cement."

**Calcining or roasting ores.** *See* "Metals (smelting)."

**Calculating:**
Lake (*Biggs*), 1019.
Keene (*Pétry*), 1534.
Barbour, 2497.
Gateuil, 3258.

**Calendars:**
Edwards (*Dunn, Lewis, Atwood, Marshall, Mussey, Bailey, Kilby & Channell*), 777.
Benderitter & Canu, 2666.
Haas, 2870.
Clark (*Parisod & Prochasson*), 3849.

**Calendering fabrics.** *See* "Finishing."

**Call-boards.** *See* "Indicators (personal)."

**Cameo cutting:**
Clark (*Minter*), 1614.

**Camera stands; producing camera obscura effects:**
Spahn, 1970.
Tongue (*Givry*), 2519.

**Camp and field equipage:**
Harper, 1144.
Percival, 1318.
Knowles & Mayell, 1579.
Thomas, 1684.
Clark (*Bouthéon*), 1854.
Clark (*Dubois*), 2219.
Cox, 2583.
Picot, 3677.
Fraise, 3818.

**Cams.** *See* "Wheels for machinery."

**Canal boats (propelling).** *See* "Propelling ships."

**Canal cutting:**
Robertson, 1675.
Davies, 3012.

**Canal locks:**
Cunningham, 1522.
Cunningham, 2132.

**Cancelling or perforating documents and papers.** *See* "Perforating paper."

**Cancelling stamps.** *See* "Stamps."

**Candles:**
Morfit, 140.
Clarke, 349.
Johnson (*Adamson*), 1051.
Lake (*Grell*), 1176.
Johnson (*Du Lin & Guillemare*), 1410.
Field, 2652.
Webb, 2770.
Clark (*Deiss*), 3323.
Clark (*Aubertin & Hannart*), 3441.
Lyttle, 3741.

**Canisters or provision tins.** *See* "Tins."

**Cannons.** *See* "Fire-arms."

**Canoes (propelling).** *See* "Propelling ships."

**Cans:**
Franklin (*Pyne & Maurice*), 332.
Lake (*Shepard & Seaman*), 444.
Chinnock, 3425.

**Canteens.** *See* "Camp equipage."

**Caoutchouc.** *See* "India-rubber."

**Cap fronts:**
Hill, 2154.

**Caps and hats.** *See* "Hats."

**Caps or primers for cartridges.** *See* "Cartridges."

**Capsuling bottles.** *See* "Bottle stoppers."

**Carbonic acid gas:**
Young, 1268.
Gossage, 1442.
Mac Kinnon, 1464.
Lake (*Walton*), 2067.
Young, 2988.
Lattimer, 3927.

**Carbonizing wrought iron.** *See* "Metals (smelting)."

**Carburetting air:**
Rigod, 983.
Lafrogne, 994.
Harrison & Harrison, 1679.
Harrison & Harrison, 1708.
Caillot, 2036.
Abel (*Marcus*), 2058.
Cook & Lafone, 2069.
Haseltine (*Fogarty*), 2296.
Emmens, 2453.
Harrison & Harrison, 2847.
Fisher, 2976.
Shedlock, 3057.
Walker, 3093.
Vaughan (*Dubois*), 3192.
Weems, 3254.
Harrison & Harrison, 3473.
Howland & McKnight, 3502.
Shedlock & Shedlock, 3728.
Simon & Simon (*Sommerfeld*), 3863.

**Carburetting steam:**
Dann (*Alleau*), 3064.

**Cardboard.** *See* "Paper-making."

**Carding fibrous materials.** *See* "Spinning (carding)."

**Cards; card cases:**
Hunt (*McOrea*), 450.
Lanteigne, 848.
Clark (*McClintock*), 1061.
Ollard & Barrow (*Gottsberger & Tappin*), 1647.
Brower, 2135.
Lake (*Weston & McDonald*), 2684.

**Carpet cleaners and stretchers; under carpets and pads:**
Schlesinger (*Dixon*), 98.
Walker, 196.
Clark (*Knowles*), 838.
Lake (*Stern*), 970.
Schlesinger (*Schlesinger*), 2049.
Clark (*Bailey*), 2084.
Lake (*Kendall*), 2740.

**Carpets (felt).** *See* "Fulling."

**Carriage robes.** *See* "Rugs."

**Carriage wheels.** *See* "Wheels for carriages."

**Carriages, cabs, omnibuses, waggons, carts and trucks:**
Coward, 115.
Blumberg (*Greenhill*), 152.
Quick & Norminton, 281.
Titley, 336.
Lenny, 565.
Weekes, 599.
Harrison, 719.
Desbordes, 810.
Lanteigne, 848.
Guttman, 1057.
Liddington, 1094.
Stone, 1115.
Jensen (*Erichsen & Maardt*), 1122.
Ironside, 1125.
Alekan & Alekan, 1141.
Clark (*Larmanjat*), 1246.
Edwards, 1287.
Kern, 1450.
Newnham, 1465.
Bonneville (*Foubert*), 1479.
Muratori, 1588.

**Carriages, cabs, &c.—*cont.***
Smith, 1602.
Inwood, 1670.
Woods & Clark, 1923.
Adams, 2076.
Percy, 2082.
Glass & Hopkin, 2102.
Lake (*Bell*), 2130.
Smith, 2196.
Atkins, 2222.
Dufrené (*Perrot*), 2234.
Edwards, 2259.
Bagster, 2373.
Dubosq, 2544.
Hamilton, 2685.
Mitchell & Newton, 2767.
Brown, 2866.
Shanks & Shanks, 2899.
Forder, 2946.
Clayton, Clayton, jun. & Howlett, 2975.
Edwards, 3166.
Davies, 3247.
Burt, 3265.
Lake (*Mekarski*), 3338.
White, 3394.
Mc Kenzie, 3484.
Ashbury, 3563.
Mc Kenzie, 3627.
Spencer & Scott, 3694.
Gutteridge, 3697.
Burrell & Pullin, 3713.
Harrison, 3715.
Rendall & Rendall, 3805.
Hope, 3885.

**Carriages, &c. (loading and unloading):**
Blumberg (*Greenhill*), 152.
Wood, 302.
Warnes & Mitchell, 2100.
Lander, 2850.
Shaw, 3868.

**Carriages for railways.** *See* "Railway carriages."

**Cartridge extractors:**
Samain, 69.
Clark (*Burgess*), 263.
Duncan & Macnaughton (*Kerr & Brydges*), 1137.
Swinburn, 1896.
Vine, Vine, Brown & Skinner, 2010.
Clark (*Gueury & Dubois*), 2281.
Clark (*Burgess*), 2354.
Piddington (*Tackels*), 2662.
Morgan-Brown (*Hotchkiss*), 3065.
Smith (*Baranovsky & Broadwell*), 3186.
Richards, 3195.
Clark (*Marelli & Marelli*), 3488.
Smiles, 3519.
Henry, 3727.
Clark (*Dumonthier*), 3917.
Johnson (*La Société Industrielle Suisse*), 3955.

**Cartridges, cases and wads:**
Giffard, 21.
Johnson (*Frasier*), 144.
Russell, 237.
Jones, 343.
Lake (*Lovett, jun.*), 805.
James, 1237.
Froitzheim, 1509.
Orr, 1697.
Riley, 1825.
Horsley, 1885.
Downing, 1975.
Blake, 2224.
Weekes, 2233.
Clark (*Burgess*), 2354.
Morgan-Brown (*Hotchkiss*), 3065.
Smith (*Baranovsky & Broadwell*), 3186.
Richards, 3195.
Lake (*Lafaure & Villain*), 3204.
De Latouche, 3468.
Bates, Dixon, jun. & Buttery, 3556.
Manceaux, 3914.

**Cartridges for smoking.** *See* "Tobacco."

**Carts.** *See* "Carriages."

**Carts for distributing sand, stones, lime, manure, &c.:**
Burrell & Pullin, 3713.
Hope, 3885.

**Carved wood (imitation).** *See* "Wood."

**Carving.** *See* "Cutting."

**Casehardening metallic articles.** *See* "Metals (smelting)."

**Cask and barrel tilters and stands; raising casks:**
Beswick & Potts, 66.
Swindells, 589.
Dubbin, 1134.
Naylor & Gilderd, 1239.
Brown, 2317.
Ellison, 2334.
Spittle, 2340.
Youngman, 2391.
Martin & Wheeler, 3066.

**Casks and barrels:**
Geoghegan, 9.
Burr (*Pratt*), 253.
Lake (*Shepard & Seaman*), 444.
Werner, 865.
Gillies, 878.
Trimmer, 912.
Muratori, 1588.
Northcote, jun., 1702.
Bryce, 2548.
Hamilton & Paterson, 3078.
Robinson & Smith, 3858.
Cornish & Strange, 3960.

**Casks (tapping and venting):**
Davis, 130.
Gaskell, 190.
Bañolas-Arnau, 198.
Punshon, 347.
Ray (*Perrellon*), 1803.
Gooding, 1835.
Smith, 2108.
Phillips, 2221.
Adam, 2879.
Hickman, 2928.
Silverlock, 3054.
Ure, 3475.
Johnson, 3483.
Weston, 3708.
Thorp, 3833.

**Casters:**
Stocker, 154.
Parry, 239.
Taylor, 504.
Lake (*Proctor & Osgood*), 1677.
Telford, 1810.
Chancellor, 3015.

**Casting and moulding metals.** *See* "Metals (casting)."

**Casting and moulding plastic materials:**
Stocker, 154.
Stone, 203.
Lake (*Hitchcock*), 405.
Taylor, 504.
Hunt (*Thompson*), 512.
Lake (*Seibert*), 525.
Rust, 567.
Brode & Brode, 804.
Spence & Spence, 853.
Ransome (*Ransome*), 877.
Lake (*Croll, Barrett & Plush*), 909.
Croskey, 966.
Don & Wright, 970.
Stone, 1115.
Bytheway, 1182.
Smith (*Hess*), 1206.
Lyttle, 1264.
Ager, 1335.
Newton (*Anderson*), 1352.
Marshall, 1357.

**Casting, &c.—*cont.***
Hamel, 1392.
Jensen (*Steinbrenner*), 1474.
Croskey, 1533.
Lake (*Luckenbach*), 1585.
Harris, 1609.
Gathercole, 1627.
Tucker, 1669.
Lodge, 1744.
Lewis, 1851.
White, 1978.
Payne, 2015.
Lake (*Smith*), 2065.
Clark (*Simons*), 2187.
Sutcliffe & Sutcliffe, 2194.
Bennett & Watt, 2276.
Jaynor, 2361.
Thornton, 2499.
Boynton, 2924.
Mallet & Scholefield, 2982.
Lake (*Hyatt & Hyatt*), 3101.
McDonald, 3115.
Menet, Gally, Oswald & Peigner 3133.
Rowe, 3173.
March, 3212.
Perry, 3216.
Withy & Gibson, 3252.
Glazier, 3278.
Basford, 3285.
Clark (*Lavater*), 3414.
Gregg, 3426.
Jenner, 3505.
Heath, Evens & Heath, jun. 3544.
Magnus, 3831.
Coone (*Houghton*), 3875.
Conniff, 3896.
McAdam, 3924.
Clark (*Bulmer & Sheppard*), 3935.
Venman & Warne, 3944.

**Castings (holding, adjusting, lifting or hauling iron):**
Payton, 3187.

**Catamenial belts.** *See* "Medical treatment of man."

**Cattle food.** *See* "Food for cattle."

**Cattle (keeping steady during transit by sea):**
Cornish, 3661.

**Caulking.** *See* "Ship-building."

**Ceilings; whitewashing ceilings:**
Stone, 203.
Lake (*McLeod*), 443.
Fothergill & Rumble, 668.
Stone, 1115.
Norton, 1149.
Walker & Ragon, 1288.
Turner, 1396.
Smith (*Alliger*), 2246.
Haseltine (*Osborn*), 2414.
Grainger, 2556.
Glazier, 3278.
Tall, 3444.

**Celery and cardoons (protecting growing).** *See* "Horticulture."

**Cellars; cellar flaps:**
Camroux, 2708.

**Cement; plaster; burning lime:**
Lake (*Schott*), 279.
Gibbs & Borwick, 314.
Johnson (*Caldwell*), 340.
Drevet, 669.
Norton, 1149.
Norton, 1151.
Gray (*Renos*), 1215.
Bradley, 1307.
Jensen (*Erickson & Maardl*), 1462.
Christy, jun., & Bobrownicki, 1482.
Johnson, 1583.
Burge, jun., 1877.
Wrigley, 1882.
Thwaites, Fondeville & Bertin, 2066.
Lake (*Schott*), 2119.
Dodge, 2459.

**Cement, &c.**—*cont.*
Winskill, 2495.
Drevet, 2638.
Smith, 2782.
Young & Braah, 2823.
Rowe, 3173.
Davey, 3182.
Williams, 3272.
Bonneville (*Avril*), 3317.
De Michele, 3371.
Hart & Hart, 3734.
Smith, 3915.
Williams, 3919.

**Centrifugal machines:**
Budenberg (*Priew*), 235.
Morgan-Brown (*Cottle*), 1350.
Johnson, 1455.
Barlow (*Renard*), 1613.
Hughes (*Werne*), 2423.
Hughes (*Langen*), 2456.
Rydill, 2886.
Rydill, 2979.
Astrop, 2991.
Buchanan, jun., 3376.
Whittingham, 3610.

**Ceramic wares.** *See* "Earthenware."

**Cereal crops.** *See* "Grain crops."

**Cesspools:**
Gowans, 87.
Seddon, 106.
Gatty, 233.
Abel (*Booraff*), 3788.

**Chaff cutters:**
Carson & Toone, 665.
Follows, Bate & Edwards, 2949.

**Chains; chain cables; shackles:**
Pieper, 153.
Low, 530.
Smith, 624.
Pulvermacher, 809.
Darlow, 888.
Webster, 1027.
Fidler, 1157.
Hawker, 1177.
Darlow, 1334.
Weston, 1776.
Casbay, 2093.
Hornsby, Phillips & Innocent, 2364.
Hayes, 2564.
Martin, 2597.
Stableford, 2732.
Pulvermacher, 2771.
Picot, 3677.

**Chains and guards:**
Clark (*Edge*), 414.
Darlow, 1334.

**Chairs for railway rails.** *See* "Railways (permanent)."

**Chairs (machine):**
Johnson (*Gauduin, Mignon & Rouart*), 3970.

**Chamber vessels:**
Sullivan, 659.
Haseltine (*Imhorst*), 2442.

**Charcoal, carbon and coke:**
Box, 282.
Monckton, 423.
Robey, 435.
Lucas, 747.
Munro, 938.
Sellars, 989.
Clark (*Rouilld*), 1032.
Jensen (*Erichsen & Maardt*), 1122.
Rowlands, 1179.
Holmes & Hollinshead, 1235.
Jensen (*Erichsen & Maardt*), 1423.
Johnson, 1583.
Gorman, 2017.
Robey, 2181.
Cox & Cox, 2204.
Rose, 2232.
Cook, 2506.

**Charcoal, &c.**—*cont.*
Parker & Wade, 2528.
Scott, 2538.
Gerland & Johnson, 2569.
Brakell, 2956.
Cobley & Poynter, 3194.
Rae, 3308.

**Charms.** *See* "Jewellery."

**Charts.** *See* "Maps."

**Checking the delivery of fish or other goods:**
Durham & Hupton, 1238.

**Checking the receipt of money:**
Cardozo & Taylor, 866.
Starr, 2079.
Wier, 2145.
Davey, 2462.
Robinson, 2663.
Walker, 2723.
Whitehouse & Phillips, 3016.
Griffiths & Busby, 3089.
Grantham, 3333.
Barrington, 3745.

**Cheese; sampling cheese; cheese dishes, stands and holders:**
Yule, 3124.
Kendall, 3349.
Williamson, 3865.

**Chemical plant:**
Woods, 277.
Gibb & Gelstharp, 407.
Bell & Walker, 502.
Ellis, 611.
Smith, 1750.
Shanks, 1771.
Woore & Watt, 2257.
Moore, 2351.
Morfit, 2545.
Robertson, 2586.
Boyle, 2875.
Hughes (*Schultze*), 2889.
Aitken, 2948.
Hargreaves & Robinson, 3052.
Fairlie, 3103.
Thompson, 3202.
Teer, 3243.
De Michele, 3371.

**Chemicals (packing and carrying):**
Lake (*Seibert*), 525.

**Cheques, bills, drafts, &c.:**
Hodges, 1965.
Bebro, 2718.
Prendergast, 3495.
Sprague, 3810.

**Chests.** *See* "Boxes."

**Chevaux-de-frise.** *See* "Batteries."

**Chimneys.** *See* "Flues."

**Chlorine and chlorides:**
Weldon, 317.
Weldon, 359.
Hargreaves & Robinson, 506.
Anderson, 513.
Rich, 547.
Königs, 571.
Weldon, 602.
Garnert, 715.
Fitz Gerald & Molloy, 1376.
Solvay, 1525.
Weldon, 1539.
Kenyon, Kenyon & Swindells, 1540.
Riddell, 1690.
Weldon, 2044.
Mallet & Scholefield, 2962.
Hargreaves & Robinson, 3032.
Deacon, 3309.
Best, 3687.

**Chloroform (distilling):**
Lyte (*Storck, Hentsch, Hentsch, Lutscher, Grininger & Decoteignie*), 3685.

**Chopping or mincing.** *See* "Mincing."

**Chrysene.** *See* "Oils of tar."

**Chucks:**
Jaques & Oakley, 546.
Jaques & Oakley, 851.
Brunskill, 2037.
Bousfield (*Lewis*), 3415.

**Churns:**
Lake (*Myers*), 503.
MacLeod, 2299.
Dann (*Rickard*), 2559.

**Cigar cases:**
Dee, 127.
Dee, 158.
Dee, 160.

**Cigars, cigarettes and cigar tubes.** *See* "Tobacco."

**Cinder guards.** *See* "Fire guards."

**Cinder sifters.** *See* "Sifting."

**Cisterns; tanks; vats:**
Gowans, 87.
Cooke, 123.
Tylor & Fleury, 523.
Smith, 624.
Underhay, 670.
Denton & Field, 742.
Benson (*Hayes*), 802.
Werner, 865.
Croskey, 966.
Cochran, 1009.
Norton, 1149.
Rosier, 1166.
Ferry, 1205.
Morris, 1386.
Turner, 1396.
Preston, Prestige, Preston & Prestige, 1438.
Johnson, 1455.
Fryer, 1477.
Maddison, 1798.
Salt, 1901.
Russ, 1964.
Copland, 2141.
Tylor, 2292.
Maw, 2360.
Stoney, 2372.
Gledhill, 2388.
Morfit, 2545.
Dann (*Rickard*), 2559.
Davies, 2838.
Capel, 2932.
Bailey, 2954.
Trémaux, 2966.
Sauvée (*Duclos*), 2967.
Davies, 3012.
Underhay, 3068.
Johnson, 3148.
Bennett, 3271.
Spence (*Cheever*), 3273.
Glazier, 3278.
Prince (*Schlamp*), 3332.
Wilson, 3347.
Field, 3348.
Waide, 3366.
De Michele, 3371.
White, 3394.
Stanley, 3409.
Prall, 3410.
Morgan, Macaulay & Waide, 3439.
Hills & Biggs, 3464.
Gedge (*Palau*), 3485.
Bloss, 3489.
Wright, 3513.
Kaulbach, 3584.
Kay, 3602.
Clarke, 3726.
Allan, 3761.
Spencer, 3804.
Haseltine (*Craven*), 3843.

**Cisterns for road refuse.** *See* "Roads (cleansing)."

**Clamps:**
Lake (*Alexander*), 1425.
Cottrill, 1503.

**Clams or dogs:**
Hodkinson & Clarke, 2834.

**Classifying coins.** *See* "Coins."

**Clay (treating):**
Gibbs & Borwick, 314.
Robey, 435.
Taylor, 504.
Maw, 2360.
Smith, 2782.
Boynton, 2924.
Gregg, 3126.
Smith, 3915.

**Cleaning and polishing plate, &c.** *See* "Polishing."

**Cleaning cotton.** *See* "Spinning (opening)."

**Cleaning grain.** *See* "Grain and seeds (treating)."

**Cleaning metals.** *See* "Metals."

**Cleaning pipes.** *See* "Tube cleaners."

**Cleaning printers' inking rollers.** *See* "Printing."

**Cleaning-waste (manufacturing):**
Hampson, 2938.

**Cleansing fibrous materials.** *See* "Spinning (opening)."

**Clerical costumes.** *See* "Wearing-apparel."

**Clinical thermometers.** *See* "Surgery."

**Clinkers from fire-bars (removing).** *See* "Furnaces."

**Clipping horses.** *See* "Shearing."

**Clips or shears.** *See* "Scissors."

**Clocks, watches and time-keepers; watch keys:**
Dennison, 356.
Vale, 360.
Clark (*Coe*), 524.
Edwards (*Dunn, Lewis, Atwood, Marshall, Mussey, Bailey, Kilby & Channell*), 777.
Hunt (*Scholz*), 1004.
Dufrené (*Riondey*), 1328.
Anderson, 1483.
Wilkinson (*James*), 1496.
Hunt (*Rebour*), 1711.
Ritchie, 2078.
Henry (*Gouéry & Bigourat*), 2160.
Hopkinson, jun., 2170.
Hawkins, 2713.
Haas, 2870.
Mills (*Davis*), 2970.
Sykes & Francis, 3448.

**Clock-work for driving sewing-machines.** *See* "Propelling or driving."

**Clod crushers.** *See* "Ploughing."

**Clogs.** *See* "Boots."

**Clutches:**
Hughes (*Bates, Baker & Ferguson*), 179.
Mayer & Deshayes, 1251.
Weston, 2494.
Newton (*Whitehill*), 2759.

**Coal-getting.** *See* "Mining."

**Coaling ships.** *See* "Ships (coaling)."

**Coal-scuttles:**
Lake (*Morison*), 373.
Dorrell, 1726.

**Coating and covering leather, cloth, ropes and tarpaulin:**
Lake (*Crossdale*), 148.
Hulse & McKay, 381.
Lake (*Hitchcock*), 405.
Gray (*Renos*), 1215.
Finlay, 1330.
Moseley, 1637.
Timmis, 1696.
Macintosh & Boggett, 2554.
Morgan-Brown (*Möller*), 3067.
Bolton, 3643.

**Coating and covering paper:**
Don & Wright, 970.
Gray (*Renos*), 1215.
Witty, 1248.
Lake (*Conger*), 1304.
Finlay, 1330.
Cates & Swindlehurst, 1557.
Morton, 1739.
De Zuccato, 1963.
Thwaites, Fondeville & Bertin, 2003.
Lake (*Bloodgood*), 2572.
Black, 2751.
Morgan-Brown (*Möller*), 3067.
Glazier, 3278.
Wagner, 3437.
Siccinoski, 3451.

**Coating bricks, stone, slate, tiles, earthenware, cement and plaster:**
Gray (*Renos*), 1215.
Finlay, 1330.
Lysons & Forbes, 1634.
Thwaites, Fondeville & Bertin, 2003.
Thwaites, Fondeville & Bertin, 2004.
Drevet, 2638.
Morgan-Brown (*Möller*), 3067.
Menet, Gally, Oswald & Peigner, 3133.
Knott, 3154.
Magnus, 3831.

**Coating metals:**
Lake (*Radde*), 121.
Weeks, 141.
Weir & Weir, 262.
Lake (*Morison*), 373.
Johnson (*Busby*), 419.
Heshuysen, 519.
Smith, 624.
Adams, 664.
Lee, 694.
Pye-Smith & Ribbans, 831.
Young, 868.
Smith, 921.
Joseph, 927.
Manent, 963.
Don & Wright, 970.
Danks, 1063.
Lilly, 1101.
Davey, 1211.
Gray (*Renos*), 1215.
Finlay, 1330.
Figatner, 1596.
Hobbs & Hart, 1611.
Lysons & Forbes, 1634.
Morgan-Brown (*Gallaher*), 2073.
Casbay, 2098.
Allen & Fitzgerald, 2208.
Edwards, 2259.
Gill, 2261.
Haseltine (*Sanderson*), 2485.
Lochhead, 2518.
Morfit, 2545.
Lake (*Bloodgood*), 2572.
Bousfield (*Heaton*), 2707.
Saunders & Piper, 2920.
Newton (*Rump*), 3056.
Morgan-Brown (*Möller*), 3067.
Toussaint, 3096.
Knott, 3154.
Glazier, 3278.
Bagley, 3421.
Wetton, 3492.
Price & Saniscovsky, 3517.
Taylor, 3655.
Smith, 3657.
Petitjean, 3680.

**Coating metals—*cont.***
Gutteridge, 3697.
Johnson (*Dodge*), 3969.
Johnson (*Gaudwin, Mignon & Rouart*), 3970.

**Coating or covering blocks of manure.** *See* "Manure."

**Coating or covering cylinders or rollers:**
Walton, 176.
Dobson, Rushton & Dobson, 291.
Wilkinson, 371.
Clark (*Lindsley & Bartlett*), 702.
Lake (*Caswell*), 773.
Wolstenholme, 951.
Brooke, 1160.
Newton (*De Bisschop*), 1594.
Simonett & Roberton, jun., 2633.
Clark (*Chaufourier*), 2478.
Brooke, 2956.
Lake (*Freeman*), 3119.
Symonds, 3296.
Gedge (*Gaudefroy, fils*), 3712.
Johnson (*Gaudwin, Mignon & Rouart*), 3970.

**Coating or covering wire:**
Pigott, 296.
Truman, 483.
Barlow, jun. (*Brown*), 731.
Highton, 1279.
Gilbert, 1753.
Rolls, 1786.
Lake (*Hiler*), 1847.
Highton, 2547.
Mudford, 2582.
Lake (*Simmons*), 3736.

**Coating or lining moulds and cores:**
Cooper, 296.
Abel (*Hainsworth*), 488.
Hunt (*Thompson*), 512.
Payne, 2015.

**Coating or lining smut machines:**
Mills (*Wood & Skinner*), 3399.

**Coating portable magnets:**
Darlow, 3221.

**Coating ships' bottoms.** *See* "Ships' bottoms (coating)."

**Coating the core of fuses:**
James, 2298.

**Coating wood:**
Hyatt, 40.
Weeks, 141.
Lake (*Hitchcock*), 405.
Werner, 865.
Joseph, 927.
Norton, 1149.
Gray (*Renos*), 1215.
Finlay, 1330.
Lysons & Forbes, 1634.
Casbay, 2098.
Letchford, 2392.
Lake (*Bloodgood*), 2572.
Morgan-Brown (*Möller*), 3067.
Knott, 3154.
Oliver, 3623.
Smith, 3657.
Lake (*Simmons*), 3736.

**Cocks and taps:**
Spence, 56.
Blundon & Cleaver, 461.
Wright, Broom & Bruce, 654.
Bennett, 1050.
Chadderton, Allmark & Haigh, 1262.
Brookes (*Forjon*), 1355.
Johnson (*Durafort*), 1495.
Dugdale, Mingrat & Vansteenkiste, 1662.
Hack, 1683.
Johnson (*Lemaire & Sonnois*), 1791.
Gooding, 1835.

**Cocks and taps**—*cont.*
Lambert & White, 1836.
Wright, 1940.
Lake (*Walton*), 2067.
Chandler, 2090.
Hawley, 2264.
Baller, 2453.
Varnaison, 2508.
Woodhouse, 2602.
Shanks, 2643.
Adam, 2879.
Hickman, 2928.
Rigollot, 3063.
Bennett, 3271.
Belleville, 3284.
Read, 3372.
Johnson (*Mignon & Rouart*), 3422.
Pode, 3430.
Ure, 3475.
Gedge (*Chambeaux*), 3605.
Thorp, 3833.
Penn, 3871.
Radford, 3905.

**Cocoa:**
Warry, 1162.
Boyes, 3099.

**Cocoa nut mats.** *See* "Rugs."

**Coffee; coffee tablets; coffee pots; obtaining infusions of coffee; packing coffee:**
Gibbs & Borwick, 314.
Curtis, 337.
Grinlinton (*Dawson*), 724.
Huch, 985.
Warry, 1162.
Doyen, 1743.
Perry, 1831.
Bass, 2087.
McKinlay, 2405.
Huch, 2535.
Ross (*Dawson*), 2667.
Bartlett, 2854.
Aitken, 2948.
Boyes, 3099.
Goldsmith & Dilkes, 3156.
Blackburn, 3253.
Hemingway, 3465.
Gedge (*Palau*), 3485.

**Coffee mills:**
Clark & Bruerton, 1713.
Towle (*Dodge & Messrs. Welch*), 3373.

**Coffer dams:**
Milroy & Butler, 879.
Johnson (*Inglis*), 1266.

**Coffins:**
Scruton, 517.
Leaker, Norman & Leaker, 2238.
Drinkwater, 2625.
Glazier, 3278.

**Coins; coin blanks:**
Seyd, 368.
Napier, 402.
Wright, Broom & Bruce, 654.
Napier, 2639.
Brewer (*Le Blanc & Vincent*), 2925.

**Coke.** *See* "Charcoal."

**Collars.** *See* "Shirts."

**Colouring fabrics and yarns:**
Ripley (*Depoully*), 283.
Barraclough & Barraclough, 441.

**Colouring gems or precious stones.** *See* "Gems."

**Colouring or staining paper, &c.** *See* "Staining."

**Colouring or tinting photographs.** *See* "Photography."

**Columns; pillars; pilasters:**
Gregg & Evans, 771.
Smith, 921.
Walker & Ragon, 1288.
Désgoffe, 1447.
Lloyd, 1482.
Hobbs & Hart, 1611.
Milroy, 1788.
Johnson (*Wheeler*), 3030.
Parks, 3260.
Glazier, 3278.
Bousfield (*Lewis*), 3415.
Lloyd, 3638.
Smith, 3657.
Tuddenham, 3762.
Magnus, 3831.

**Combing fibrous materials.** *See* "Spinning (carding)."

**Combs:**
Clark (*Lavater*), 3414.

**Commodes.** *See* "Waterclosets."

**Compasses for ships; field compasses:**
Low, 33.
Clark & Jobson, 256.
Middleton, 265.
Johnson (*Arson*), 312.
Glover, 698.
Lake (*Biggs*), 1019.
Henry (*Gouéry & Bigourat*), 2169.
Douglas & Scott, 2310.
Reynolds, 2820.
Vaughan (*Ripamonti & Ripamonti*), 3360.

**Compositions for road making.** *See* "Roads."

**Compositors' type cases.** *See* "Printing."

**Compressed gas-engines.** *See* "Air-engines."

**Compressing or "upsetting" metals.** *See* "Metals."

**Concentrating light of gas.** *See* "Gas-burners."

**Concrete.** *See* "Stone."

**Condensers and condensing:**
Higginson, 202.
Johnson (*Ponsard Metallurgical Society*), 426.
Lake (*Brayton*), 432.
Young, 618.
Wright, Broom & Bruce, 654.
Exall, 672.
Soul (*Haenlein*), 821.
Newton (*Thompson & Olson*), 1145.
Stephens, 1342.
Moseley, 1637.
Newton (*Dod*), 1658.
Robertson, 1675.
Riddell, 1690.
Dann (*Péron*), 1699.
Johnson (*Lemaire & Sonnois*), 1791.
Körting, 1796.
Bull, 1845.
Robertson (*Robertson*), 1982.
Todd, 2035.
Thomson & Thomson, 2056.
Downes, 2066.
Cox & Cox, 2204.
Dufrené (*Faure & Kessler*), 2205.
Coxhead & Miller, 2252.
Young, 2293.
Motard, 2336.
Sutcliffe, 2386.
Lipscombe, 2450.
Church, 2469.
Vincent, 2510.
Foster, 2551.
Hargreaves & Robinson, 2573.
Fairlie & Perkins, 2616.
Reynolds, 2806.

**Condensers, &c.**—*cont.*
Porter, 2800.
Hill, 2839.
Alleyne, 2930.
Sims & Holmes, 3042.
Contarini, 3092.
Glydon & Glydon, 3120.
Robertson, 3134.
Johnson, 3148.
Davey, 3208.
Spence (*Cheever*), 3273.
Hedley, Smith & Hedley, 3310.
Prince (*Fischer*), 3331.
Newton (*Dod*), 3588.
Haseltine (*Goodrich*), 3641.
Ivory, 3682.
Gedge (*De Kercado*), 3766.
Haseltine (*Craven*), 3843.
McCarter, 3890.

**Conducting fluids.** *See* "Pipes."

**Confectionery:**
Johnson (*Tingley*), 914.
Henry (*Peltier & Paillard*), 1336.
Lake (*Cavayé*), 1586.
Doyen, 1743.
Marrian, 1797.
Valleton & Planque, 2783.
Bigg & Hunt, 2795.
Cooper, 3232.

**Consuming smoke.** *See* "Smoke prevention."

**Converting motions.** *See* "Propelling or driving."

**Cooked food (maintaining heat of):**
Jolliffe, 1979.

**Cooking:**
Fothergill, 63.
Jowett, 336.
Jarman & Mitchell, 338.
Billing, 391.
Harrison & Harrison, 735.
Browne, 758.
Monteith (*Urquhart*), 837.
Beveridge (*Jurgens*), 943.
Mills, 1038.
Muschamp, 1040.
Kite, 1214.
Fearnley, 1461.
Clark (*Odrowonge-Wysocki*), 1536.
Browne, 1543.
Knowles & Mayell, 1579.
Porteous & Bruce, 1645.
Thomas, 1684.
Clark (*Bouthéon*), 1854.
Phillips, 1956.
Cressey, 2230.
Mortlock, 2247.
Lake (*Brooks*), 2425.
Truswell & Holden, 2477.
Warry, 2513.
Huch, 2535.
Cox, 2583.
Robertson, 2586.
Thornton, 2778.
Aitken, 2948.
Russell, 3138.
Goldsmith & Dilkes, 3156.
Harper, 3233.
Forbes, 3250.
Blackburn, 3253.
Smith, 3313.
Verrier, 3375.
Blocksage, 3431.
Longden, 3640.
Koestgen (*Kunstädter*), 3794.
Fraise, 3818.
Mackinnon, 3951.

**Cooking screens:**
Dexter, 3223.

**Cooling air and gases:**
Johnson (*Nezeraux*), 2054.

**Cooling and preserving fire bars:**
Ellis, 611.

Cooling and preserving meat:
Walker, 272.
Abate, 1853.
Hunt (*Bray*), 2406.

Cooling and ventilating structures, &c. *See* "Ventilating."

Cooling boilers in paper making:
Lee, 1804.

Cooling break blocks:
Renshaw, 2231.

Cooling coffee, cocoa and other berries after roasting:
Boyes, 3099.

Cooling converting chambers in chemical works:
Hargreaves & Robinson, 3052.

Cooling cutting tools:
Clay, 1014.
Horton, 2408.

Cooling cylinders, pistons and rollers:
Johnson, 732.
Newton (*De Bisschop*), 1594.
Davis, 1869.
Clark (*Chaufourier*), 2478.
Rand, 2748.
Brown (*Colladon*), 3126.
Thompson, 3202.

Cooling fan spindles and bearings:
Holt, 1725.

Cooling furnaces and retorts:
Crampton, 931.
Renshaw, 1123.
Bedson, 1469.
Imray (*Blair*), 1589.
Imray (*Blair*), 1795.
Thomas, 1886.
Russ, 1964.
Warren, 2358.
Haseltine (*Banis*), 2440.
Malam, 3180.
Wilson, 3347.
Casson (*Dormoy*), 3763.

Cooling liquids. *See* "Refrigerating."

Cooling slag and scoria on removal from furnaces:
Joy, 199.
Wood, 302.
Wood, 2618.

Cooling the head and body:
Macintosh & Boggett, 137.
Floyd, 225.

Cooling the heater box of bookbinders' embossing and printing presses:
Carwood, 2935.

Cooling valves:
Cazier, 1941.

Cop tubes. *See* "Bobbins."

Copper-boilers. *See* "Boilers (domestic)."

Copying; copying machines:
Baggs, 108.
Bonneville (*Le Clercq*), 238.
Bayly, 319.
Johnson (*Lebœuf*), 650.
Heyer, 1204.
Brookes (*Farjon*), 1355.
De Zuccato, 1963.
Rack, 2675.
Wagner, 3437.
Green, 3814.
Hawke, 3847.

Coral (artificial):
Davey, 1443.

Cordage. *See* "Ropes."

Cordials. *See* "Liqueurs."

Cork; corks:
Bonneville (*De Mestre*), 174.
Schulze (*Streubel*), 1385.
Bedwell, 1517.
Michaelis (*Becker*), 1566.
Downing, 1975.
Walton, 2620.
Taylor, 2813.
Schulze (*Streubel*), 2880.
France, 3026.
De Froideville, 3190.
Jones, 3380.
Bass, 3499.

Corkscrews, fasteners and pressers; corking:
Schlesinger (*Dixon*), 98.
Warburton, 796.
Johnson (*Joannon*), 971.
Eckhold, 2241.

Corn boxes or cases:
Dorrell, 1726.

Corn mills. *See* "Grinding corn."

Corn (sheafing & binding):
Hicken, 1085.

Cornflour (packing):
Hemingway, 3465.

Cornice poles; cleaning cornices:
Sargent, 748.
Haseltine (*Osborn*), 2414.

Corns (curing). *See* "Medical treatment of man."

Corrugating metals. *See* "Metals (forging)."

Corsets. *See* "Stays."

Corundum (boring and sawing). *See* "Cutting glass and gems."

Cosmetics:
Gahn, 1240.

Cotton gins. *See* "Spinning (opening)."

Cotton seed (treating):
Bonneville (*De Masseas*), 1552.

Counter-bores. *See* "Tools."

Counters:
Millar, 244.
Conlong & Smith, 1717.
Fletcher & Fletcher, 2297.
Murdoch (*Baudot*), 2537.
Middleton, 3671.
Newall, 3753.

Coupling. *See* "Joining."

Courier bags. *See* "Bags."

Covers (metal):
Brewer (*Le Blanc & Vincent*), 2925.

Cowls for chimneys. *See* "Flues."

Cradles. *See* "Nursing."

Cramps:
Brookes (*Farjon*), 1355.

Cranes. *See* "Hoists."

Cranks:
Lake (*Proctor & Osgood*), 1677.
Thomas, 2313.
Brown, 3816.

Crates. *See* "Boxes."

Cravats. *See* "Neck-ties."

Crayons. *See* "Pencils."

Creasing and folding the blanks of paper boxes. *See* "Boxes."

Crimping. *See* "Goffering."

Crimping, curling and spinning hair:
Laycock, 2591.

Crinolines. *See* "Dresses."

Crops (protecting):
Douglass, 2628.

Crotchet needles. *See* "Needles."

Crow bars:
Schlesinger (*Dixon*), 98.

Crucibles:
Johnson (*Sellers*), 80.
Johnson (*Ponsard Metallurgical Society*), 424.
Brewer (*Bazault & Roche*), 1466.
Payne, 2015.
Hargreaves & Robinson, 2962.
Lake (*Roberts*), 3678.
Smith, 3915.
Williams, 3919.

Cuffs:
Carlile, 71.
Speight, 562.
Alekan & Alekan, 1141.
Guay, 1631.
Speight, 1732.
Foley, 3566.

Cuirasses. *See* "Breastplates."

Cultivating land. *See* "Ploughing."

Cups. *See* "Drinking vessels."

Curing corn and other grain. *See* "Grain (treating)."

Curing meats. *See* "Preserving food."

Curtains. *See* "Upholstery."

Cutlery (grinding). *See* "Grinding and surfacing."

Cutting, sawing and planing wood:
Cunningham, 55.
Last, 285.
Smith & Coventry, 290.
Pace, 369.
Granville, 605.
Clark (*Boynton*), 635.
Dumbleton, 822.
Lanteigne, 848.
Pace & Howard, 1285.
Ellis, 1360.
Lloyd, 1482.
Ransome (*Richards*), 1501
Worssam, 1503.
Clark (*Minter*), 1614.
Riddell, 1690.
Marsden, 1741.
Cotter, 1756.
McNeile, 1781.
Cascelton & Toogood, 1930.
McLaren, 2021.
Brunskill, 2037.
Gedge (*De Courson, fils*), 2150.
Whittemore (*Landfear*), 2311.
Barlow (*Davies*), 2457.
Robson, 2470.
Noad, 2610.
Ransome (*Richards*), 2674.
Womersley, 3141.
Allison, 3320.

**Cutting wood, &c.—*cont.***
Rose, 3433.
Worssam, 3442.
Hamilton, 3756.
Newton & Cotter, 3783.
Denis, 3801.
Robinson & Smith, 3858.

**Cutting, severing or dividing double piled fabrics by means of heat:**
Ramsden, 3520.

**Cutting and dressing stone and slate:**
Mortlock, 34.
Cunningham, 55.
Sturgeon, 507.
Lake (*Gear*), 579.
Grindrod & Worthington, 640.
Cope, 692.
Coulter & Harpin, 959.
Gowans, 978.
Clark (*Minter*), 1614.
Kühn, 1840.
Hughes (*Parker*), 2825.
Allison, 3320.
Bousfield (*Lewis*), 3415.
Newton (*Tilghman*), 3626.
Newton (*Baxter*), 3750.

**Cutting clay, &c.:**
Clayton & Clayton, jun., 1664.
Maxwell, 1868.

**Cutting cloth, leather and paper:**
Shaw, Ditchfield & Knowles, 122.
Lake (*Warth & Jobbins*), 536.
Hodges, 733.
Lake (*Coté & Seymour*), 760.
Tidcombe, jun., 1007.
Lake (*Conger*), 1304.
Deregnaucourt, 1431.
Dixon, Hughes & Maddox, 1526.
Speight, 1732.
Fenno & Howe, 1871.
White, 1978.
Clark (*Marinoni*), 2041.
Bean, 2267.
Schor, 2444.
Cail, 2458.
Morgan-Brown (*Dodge*), 2464.
Robson, 2470.
Ambler, 2484.
Bonneville (*Warth & Jobbins*), 2517.
Newton (*Hoe*), 2561.
Bebro, 2718.
Black, 2751.
Bigg & Hunt, 2795.
Lake (*Lincoln & Bayer*), 2831.
Clark (*Vincenzi & Messrs. Gaillard*), 2898.
Southall, 2918.
Johnson & Shanks, 3074.
Clark (*Ford*), 3572.
Salmon, 3943.

**Cutting coal.** *See* "Mining."

**Cutting edgings or verges:**
Sunley, 643.

**Cutting files.** *See* "Files."

**Cutting glass and gems:**
Bousfield (*Lewis*), 3415.
Newton (*Tilghman*), 3626.

**Cutting india-rubber:**
Oldroyd, 364.

**Cutting metals:**
Cunningham, 55.
Hughes (*Bates, Baker & Ferguson*), 179.
Lake (*Blake*), 264.
Rowan, 284.
Johnson (*Lawrence*), 339.
Jaques & Oakley, 546.
Minns, 596.
Brandon (*Weed*), 628.
Wright, Broom & Bruce, 654.
Johnson (*Whipple & Whipple*), 657.

**Cutting metals—*cont.***
Rose, 751.
Dumbleton, 822.
Jaques & Oakley, 851.
Whittle, 993.
Clay, 1014.
Tildesley & Barnard, 1029.
Lüttringhaus, 1075.
Gilbee (*Icely*), 1223.
Deregnaucourt, 1431.
Goodfellow, 1487.
Jackson & Jackson, 1601.
Walton & Jones, 1607.
Clark (*Minter*), 1614.
Marsden, 1741.
Garey, 1812.
Morgan-Brown (*Fuller*), 1977.
Lake (*Westcott Type-setting Co.*), 2111.
Lake (*Bell*), 2131.
Cherry, 2147.
Eades & Eades, 2166.
Haseltine (*Alexander*), 2282.
Towle (*Pratt*), 2305.
Horton, 2408.
Haseltine (*Goddard & Goddard*), 2537.
Edwards, 2599.
Bousfield (*Heaton*), 2707.
Mason, 2842.
Hodkinson & Clarke, 2884.
Brewer (*Le Blanc & Vincent*), 2925.
Chancellor, 3015.
Barrow, 3199.
Hughes (*Stute*), 3203.
Laycock (*Carpenter*), 3226.
Walker, 3256.
Allison, 3320.
Stiff, 3321.
Clark (*Allen & Ritchel*), 3388.
Miller, 3416.
De Latouche, 3468.
Newton (*Tilghman*), 3626.
Edmeston, 3729.
Cornforth & Dangerfield, 3819.
Duncan & Wilson (*Lauder*), 3834.
Borthwick, 3864.
Johnson (*Dodge*), 3969.

**Cutting or chopping boards or blocks:**
Baylis, 2993.
Hayne, 3214.

**Cutting or finishing cigars:**
Elman & Brown, 24.

**Cutting or granulating cork:**
Walton, 2620.

**Cutting or making pebble gunpowder.** *See* "Gunpowder."

**Cutting or opening tins.** *See* "Opening tins."

**Cutting or planing ivory:**
Allison, 3320.

**Cutting or punching articles of confectionery.** *See* "Confectionery."

**Cutting peat:**
Box, 282.
Clayton, Clayton, jun. & Howlett, 2975.
Pelly (*Van Horn*), 3330.
Love, 3780.

**Cutting sugar:**
Gibson, 1922.

**Cyder:**
Gill, 2261.

**Cyder (bottling).** *See* "Bottles."

**Cylinders, rollers and drums:**
Fish, 6.
Caspersen (*Blair*), 26.
Allerton, 114.

**Cylinders, &c.—*cont.***
Paraire, 125.
Lake (*Benton*), 157.
Cockill, Shaw, Keir & Craven, 165.
Walton, 176.
Smith, 182.
Bertieaux, 226.
Jupp, 417.
Lake (*Brayton*), 432.
Smith (*Marée & Varlet*), 442.
Nichol & Eckersley, 455.
Gardner, 491.
Bayley & Stott, 581.
Roberts, 623.
Wright, Broom & Bruce, 654.
Carson & Toone, 665.
Taylor, 667.
Newton (*Andrews*), 676.
Lancaster & Bullough, 688.
Clark (*Lindsley & Bartlett*), 702.
Johnson, 732.
Lake (*Caswell*), 773.
Thomas & Taylor, 795.
Pashley, 819.
Lake (*Field & Andrews*), 828.
Pye-Smith & Ribbans, 831.
Bleckley, 847.
Lake (*Andrews, Clague & Randall*) 855.
Neill, 906.
Gedge (*Piau*), 953.
Lake (*Taylor & Brightman*), 968.
Lake (*Chisholm*), 1002.
Walton & Fallows, 1008.
Johnson (*Fängling & Möller*), 1077.
Fairlie, 1087.
Lilly, 1101.
Danks, 1111.
Stone, 1115.
Stephens & Harvey, 1124.
Glaysher, 1128.
Brooke, 1160.
Doubelt (*Kniaghinisky, Sewastganoff & Dornowo*), 1189.
Clark (*Lewis*), 1210.
Morgan-Brown (*Goulding*), 1270.
Coddington (*Gally*), 1319.
Lake (*John*), 1332.
Bentley & Jackson, 1346.
Clark (*Massey*), 1351.
Couper, 1369.
Edwards, 1379.
Hunt (*Garnier & Hessenland*), 1380.
Newsome, 1407.
Lake (*West*), 1408.
Fryer, 1477.
Laidlaw & Fairgrieve, 1491.
Rooke, 1513.
Eckhold, 1547.
Westinghouse, jun., 1572.
Corbett, 1630.
Dickson, 1643.
Lake (*Campbell & Saunders*), 1656.
Cope & Barrett, 1659.
Hollick, 1672.
Lake (*Locke & Locke*), 1676.
Sullivan, 1689.
Holt, 1725.
Farmer, 1761.
Johnson (*Lemaire & Sonnois*), 1791.
Dawes, 1857.
Kochs, 1865.
Maxwell, 1868.
Davis, 1869.
Salt, 1901.
Norton & Carter, 1911.
Young, 1912.
Brewer (*Lowden*), 1924.
Paul & Haythorn, 1939.
Parker & Robson, 1947.
Kirk, 1952.
Crosland, 1962.
Russ, 1964.
Robertson (*Robertson*), 1982.
King, 1990.
Parlour, 2014.
Sauvée (*Duclos*), 2024.
Uhry, 2026.
Simonett & Roberton, jun., 2038.
Tonkin, 2045.
Thomson & Thomson, 2056.
Lagrange, 2094.
Imray (*Sulzer, Sulzer & Ernst*) 2193.

Cylinders, &c.—*cont.*
Levey (*Levey*), 2235.
Ashlin & Clover, 2244.
Levey, 2289.
Thomas, 2313.
Haseltine (*Tanner*), 2329.
Morris, 2363.
Nussey & Leachman, 2370.
Hadfield, 2396.
Barbour, 2437.
Newton (*Hoe*), 2561.
Jones, 2595.
Henderson, 2689.
Reynolds, 2696.
Bailey & Westley, 2709.
Johnson (*Forquignon & Ehrmann*), 2712.
Bebro, 2718.
Stevens & Cullum, 2727.
Rand, 2748.
Clark (*De Moriès*), 2785.
Story & Lynde, 2791.
Newsome & Overend, 2873.
Abel (*Orlowski*), 2883.
Hodkinson & Clarke, 2884.
Hall, 2885.
Turner & Pridmore, 2905.
Boynton, 2924.
Doubelt (*Kniaghininsky, Sewastganoff & Dornowo*), 2945.
Brooke, 2958.
Dickson, 2995.
Kay & Hartley, 2999.
Johnson & Shanks, 3074.
Boyes, 3099.
Conisbee & Smale, 3111.
Lake (*Freeman*), 3119.
Johnson (*Rand & Waring*), 3125.
Brown (*Colladon*), 3126.
Ford, 3131.
Goldsmith & Dilkes, 3156.
Bayley & Stott, 3174.
Thompson, 3202.
Wilcke, 3209.
Milward, 3227.
Lake (*Schmitt*), 3228.
Lake (*Critchlow*), 3229.
Picking & Hopkins, 3236.
Clark, 3246.
Davis & Pardoe, 3248.
Winne & Winne, 3249.
Reynolds, 3264.
Law & Law, 3283.
Grether, 3290.
Symonds, 3296.
Rae, 3306.
Crosland, 3310.
Newall & Barker, 3336.
Barr, 3343.
Macken (*Spineux*), 3354.
Towle (*Dodge & Messrs. Welch*), 3373.
Clark (*Lavater*), 3414.
Sang, 3455.
De Latouche, 3468.
Grierson & Philips, 3494.
Brown, 3500.
Brydon, Davidson & Warrington, 3507.
MacDonald & Calverley, 3537.
Chiffray, 3545.
Quadling & May, 3559.
Clark (*Ford*), 3572.
Kay, 3602.
Benson (*Cope & Maxwell*), 3617.
Mosley, 3637.
Andrews, 3645.
Clayton, 3660.
Newton (*Woodbridge*), 3702.
Gedge (*Gaudefroy, fils*), 3712.
Servante, jun., 3720.
Hart & Hart, 3734.
Harvey, 3746.
Bullough, 3770.
Sprague, 3810.
Ellington & Harrison, 3812.
Morgan-Brown (*Beisson*), 3873.
Crossley & Crossley, 3878.
Prideaux, 3898.
Brydon, Davidson & Warrington, 3921.
Venman & Warne, 3944.
Wood, 3945.
Anderson, 3953.
Haseltine (*Peple*), 3958.

Cylinders, &c.—*cont.*
Bullough, 3963.
Johnson (*Gauduin, Mignon & Rouart*), 3970.


## D.


Daggers and dirks:
Andrew, 184.
Needham, 3538.

Dampers. *See* "Air-supplying to furnaces."

Dampers for box irons. *See* "Ironing."

Dampers for ventilators. *See* "Ventilating."

Damping paper and labels:
Johnson (*Lebœuf*), 650.
Brook, 1399.

Damping printing "formes" and lithographic stones:
Edwards, 73.
Newton (*Hoe*), 545.
Wolstenholme, 951.

Damping yarn in spinning. *See* "Spinning, twisting."

Decanters. *See* "Bottles."

Decolourizing sugar:
Robey, 435.
Kleberg (*Tsherikovsky*), 1289.

Decorative and pictorial compositions and materials:
Rust, 567.
Lasché, 2893.
March, 3312.
Glasier, 3378.
Faulkner, 3531.
Smith, 3915.

Decorticating grain or seeds. *See* "Thrashing."

Deed boxes or chests. *See* "Boxes."

Defacing stamps. *See* "Stamps."

Dentistry; artificial teeth; dentists' busts:
Mack, 147.
Crapper, 231.
Graham & Wood, 490.
Oclee, 737.
Gahn, 1240.
Hunt (*Reynolds*), 2207.
Towle (*Dodge & Messrs. Welch*), 3373.

Deodorizing:
Seddon, 106.
Bostel, 269.
Prange & Whitthread, 379.
Carter, 465.
Carr, jun., 470.
Hillé, 484.
Sillar, Sillar & Rawson, 575.
Wigner & Williamson, 758.
Phillips, 811.
Symington, 955.
Badin, 1065.
Bending, 1299.
Robey, 1421.
Johnson, 1455.
Armytage, 1529.
Sillar, Sillar & Rawson, 1806.
Baker, 1996.
Stanford, 2118.
Thompson, 2195.

Deodorizing—*cont.*
Synge, 2227.
Synge, 2496.
Scott, 2533.
Gerland & Johnson, 2569.
Caffall, 2633.
Synge, 2683.
Webb, 2770.
Allardyce, 2891.
Barnett & Slade, 2934.
Target, 3215.
Manning, 3356.
Hills & Biggs, 3464.
Currer & Dewar, 3529.
Belford, 3533.
Scott, 3755.
King, Messrs., 3760.
Target, 3821.
Haseltine (*Oraves*), 3843.
Fereday, 3882.
Morrell & Proctor, 3898.

Depositing metals on metals. *See* "Coating metals."

Despatch bags. *See* "Mail-bags."

Dessert knives and forks. *See* "Knives."

Destroying insects. *See* "Insects."

Detectors for ascertaining errors in ships' compasses. *See* "Compasses."

Detergents. *See* "Soap."

Detonating signals. *See* "Signals."

Dextrine. *See* "Starch."

Diaries. *See* "Books."

Dies; die-sinking; die presses:
Newton (*Thompson*), 506.
Johnson (*Reckendorfer*), 573.
Lake (*Coté & Seymour*), 769.
Brookes (*Farjon*), 1355.
Clark (*Minter*), 1514.
Davis, 1714.
Marsden, 1741.
Maxwell, 1868.
Tongue (*Favier*) 1946.
Lake (*Bell*), 2130.
Lake (*Bell*), 2131.
Pinches, 2409.
Gally, 2481.
Smith, 2646.
Boeklen, 2803.
Boynton, 2924.
Cox, 2963.
Huggett & Huggett, 3037.
Stocker, 3062.
Anderson, 3110.
Goss, 3129.
Cooper, 3160.
Barrow, 3199.
Laycock (*Carpenter*), 3226.
Cooper, 3232.
Lake (*Mitchell*), 3239.
Clark, 3246.
Edmeston, 3729.
Sloper, 3740.
Cornforth & Dangerfield, 3819.
Hughes (*Mallett Manufg. Co.*), 3832
Duncan & Wilson (*Lauder*), 3834.
Neville, 3862.
Lones, Lones, Vernon & Holden 3884.
Johnson (*Dodge*), 3969.

Differential screw motions:
Rogers, 1573.

Digging machines:
Hughes, 936.
Cocks, 1559.
Porter, 1820.
Hyde, 2127.
Love, 3780.

Discharging cargo. *See* "Ships' cargoes."

**Dishes; platters; holding or suspending the lids or covers of dishes; cases and holders for pressed or cooked meats:**
Keeling, 541.
Thompson, 621.
Lanteigne, 848.
Toft, 3294.
Kendall, 3349.
Williamson, 3365.

**Disinfecting:**
Doudney & Adams, 178.
Gatty, 233.
Robey, 435.
Hillé, 484.
Rich, 547.
Macpherson, 564.
Blackburn, 671.
Badin, 1065.
Christy, jun. (*Bobrownicki*), 1327.
Danchell, 1394.
Robey, 1421.
Costa & Lawrie, jun., 1593.
Baker, 1906.
Mills (*Dorlan*), 2029.
Thompson, 2195.
Scott, 2538.
Webb, 2770.
Barnett & Slade, 2913.
Barnett & Slade, 2934.
Capel, 3168.
Target, 3215.
Teer, 3243.
Curror & Dewar, 3529.
Belford, 3533.
King, Messrs., 3760.
Target, 3831.
Fereday, 3882.
Badin, 3913.

**Disintegrators:**
Greenhill, 131.
Ungerer, 257.
Stephens, 677.
Milburn & Jackson, 2266.
Rae, 3308.
Pelly (*Von Horn*), 3330.

**Distance travelled.** *See* "Indicating speed."

**Distilling alcoholic and spirituous liquors:**
Johnson (*Leconte*), 404.
Bell & Walker, 502.
Gibon, Dusart & Bardy, 812.
Hollefreund, 880.
Garton, 899.
Newton (*Thompson & Olson*), 1145.
Lake (*Cavayé*), 1586.
Conron, 2180.
Woore & Watt, 2257.
Moore, 2351.
Williams, 2395.
Hughes (*Schultze*), 2889.
Alleyne, 2950.
Dann (*Alleau*), 3064.
Ivory, 3682.
Lyte (*Storck, Hentsch, Hentsch, Latscher, Grininger & Decottignie*), 3685.
Miller, 3926.
Johnson (*Leconte*), 3956.

**Distilling ammonia.** *See* "Alkalies."

**Distilling chloroform.** *See* "Chloroform."

**Distilling coal in gas making.** *See* "Gas."

**Distilling fæcal, solid and liquid matters:**
Henderson (*Chapusot*), 926.

**Distilling oils:**
Coffey, 64.
Young, 618.

**Distilling oils—*cont.***
Lee, 694.
Lucas, 747.
Benson (*Honell*), 799.
Munro, 968.
Platt, 969.
Sellars, 989.
Bell, jun., & Bell, 1073.
Lake (*Grell*), 1176.
Cornish, 1420.
Clark (*Audouin*), 1456.
Porter & Porter, 1494.
Anderson & Buchanan, 1768.
Shanks, 1771.
Dorsett, 1892.
Cox & Cox, 2204.
Young, Brash & Scott, 2487.
Hall, 2550.
Webb, 2770.
Hughes (*Schultze*), 2889.
Spence (*Cheever*), 3273.

**Distilling phosphorus.** *See* "Phosphorus."

**Distilling water.** *See* "Filtering."

**Distributing manure.** *See* "Manure distributors."

**Ditches.** *See* "Drains."

**Diving; diving bells and dresses:**
Vinter, 3122.

**Docks; floating docks; basins:**
Page, 135.
Maw, 1086.
Jensen (*Steinbrenner*), 1474.
Cunningham, 1522.
Duer, 1615.
Turnbull, 2013.
Casbay, 2093.
Cunningham, 2132.
Lake (*Bloodgood*), 2572.
Allan, 3761.

**Dominoes.** *See* "Games."

**Dogs or Clams.** *See* "Clams."

**Doors and gates; door furniture:**
Galloway, 14.
Dominy & Russell, 36.
Johnson (*Sellers*), 80.
Gilyard, 330.
Taylor, 504.
Minns, 596.
Tildesley & Barnard, 1029.
Harrison & Priestland, 1127.
Ellis, 1451.
Lloyd, 1482.
Cunningham, 1522.
Smith, 1602.
Hobbs & Hart, 1611.
Heald, jun., 1784.
Chapin, 1862.
Davis, 1869.
Turner, 1875.
Thomas, 1886.
Stones & Castle, 2007.
Elwell & Grove, 2048.
Holbrook, 2052.
Glass & Hopkin, 2102.
Sutcliffe, 2112.
Wilkes, 2117.
Cunningham, 2132.
Goold, 2182.
Hutton, 2184.
Edwards, 2259.
Bagster, 2373.
Haseltine (*Banta*), 2440.
Brodie, 2472.
Blackmore, 2505.
Broadbent, 2601.
Pollatt, 2631.
Camroux, 2708.
Lake (*Briggs*), 2741.
Morgan, 2806.
Wappenstein, 2810.
Siemens (*Siemens*), 2923.
Sauvée (*Duclos*), 2967.
Fisher, 2976.
Mann, 2998.
Large, 3079.

**Doors and gates, &c.—*cont.***
Ridpath & Sherring, 3167.
Harrison, 3205.
Glazier, 3278.
West & West, 3402.
Blyth, 3423.
Bourne, 3471.
Smith, 3577.
Tuddenham, 3762.
Rydill, 3938.
Clark, 3954.
Gompertz, 3965.
Lees, 3966.

**Doubling and throwing fibrous materials.** *See* "Spinning, twisting."

**Drains, gullies and sewers; draining:**
Clark, 27.
Seddon, 106.
Gatty, 233.
Rosborough, 324.
Johnson, 472.
Chadwick, 539.
Macpherson, 564.
Le Mesurier, 566.
Goulton & Sharpe, 577.
Molesworth, 655.
James, 778.
Smith, 921.
Dunn, 939.
Manent, 963.
Lake (*Carter*), 992.
Smith, 1022.
Lake (*Carter*), 1049.
Newton (*Anderson*), 1352.
Carter & Carter, 1434.
Lake (*Daniels*), 1500.
Armytage, 1529.
Costa & Lawrie, jun., 1593.
Maddison, 1798.
Newton (*Thompson*), 1864.
Denham, Messrs., 1936.
Parlour, 2014.
Johnson, 2126.
Pullen, sen., & Pullen, jun., 2163.
Love, 2179.
Sutcliffe & Sutcliffe, 2194.
Banner, 2303.
André, 2312.
Sebille, 2491.
Tugby, 3049.
Greig, 3091.
McLennan, 3151.
Capel, 3168.
Glazier, 3278.
Newton (*Thompson*), 3411.
Donaldson, 3681.
Brocklehurst & Crossley, 3688.
Scott, 3755.
Hamit, 3764.
Abel (*Booroff*), 3788.
Haseltine (*Craven*), 3843.
Hope, 3885.
Smith, 3915.

**Drawing; sketching; tracing; drawing boards and slates:**
Wigzell, 298.
Hautrive, 1295.
Bowden, 1493.
Faulkner, 1642.
De Zuccato, 1963.
Johnson (*Bergner*), 2585.
Mackenzie, 2645.
Richards (*Holman*), 3297.
Vaughan (*Daguin*), 3432.
Wagner, 3487.
Siecinoski, 3451.
Faulkner, 3531.
Gedge (*Camus*), 3902.

**Drawing fibres.** *See* "Spinning, twisting."

**Drawing wire.** *See* "Wire-working."

**Dredging:**
Burt (*Burt*), 26.
Simons & Brown, 494.
Rowat, 1578.

**Dress improvers.** *See* "Dresses."

**Dress suspenders.** *See* "Dresses."

**Dresses and other garments; ladies' underclothing:**
Macintosh & Boggett, 137.
Tombs, 493.
Barnett, 651.
Alekan & Alekan, 1141.
Darlow, 1334.
Darlow, 1665.
Clark (*Thomas*), 1692.
Merrylees, 1921.
Rossiter, 2419.
Peake, 2658.
Wassall, 2802.
Davidson, 2868.
Wadsworth, 2927.
Goss, 3129.
Owens & Puzey, 3176.
Darlow, 3221.
Henderson, 3684.
Welton, 3823.

**Dressing and sizing yarns.** *See* "Sizing."

**Dressing cases:**
Lüttringhaus, 1102.
Ricketts, 1556.
Pigall, 3551.

**Dressing flour.** *See* "Grinding corn."

**Drilling or making holes.** *See* "Boring."

**Drills, seed drills.** *See* "Sowing."

**Drinking fountains.** *See* "Fountains."

**Drinking vessels:**
Macintosh & Boggett, 137.
Newton & Swallow, 2343.
Cox, 2769.
Goss, 3129.
Bousfield (*Lewis*), 3415.

**Drinks:**
Bonneville (*Beckman-Olafson*), 376.

**Driving bands.** *See* "Bands."

**Drop drills.** *See* "Sowing."

**Drowning (saving from).** *See* "Life buoys."

**Dry closets.** *See* "Waterclosets."

**Drying; expressing moisture:**
Lyttle, 31.
Thomas, 217.
Newton (*Morgan*), 266.
Johnson, 298.
Williams, 303.
Petrie, jun., 307.
Gibbs & Borwick, 314.
Rydill, 370.
Hulse & McKay, 381.
Lake (*Hitchcock*), 405.
Gibb & Gelstharp, 407.
Monckton, 423.
Nichol & Eckersley, 455.
Browne (*Count of Montebello*), 510.
Lancaster & Bullough, 683.
Lee, 694.
Grinlinton (*Dawson*), 724.
Brode & Brode, 804.
Monteith (*Urquhart*), 837.
Lake (*Bailey, Goodrich & Locke*), 857.
Joseph, 927.
Worrall, 1024.
Lawrence & Lawrence, 1033.
Johnson (*Adamson*), 1051.
Worrall & Kershaw, 1070.
Clark (*Legat*), 1098.
Mills (*Hutchinson*), 1140.

**Drying, &c.—*cont.***
Kleberg (*Tsherikovsky*), 1229.
Clark (*Bastaert*), 1246.
Eagles (*Bergehausen, Philipps & Kiesling*), 1263.
Christy, jun. (*Bobrownicki*), 1327.
Bentley & Jackson, 1346.
Morgan-Brown (*Cottle*), 1350.
Culp, 1377.
Johnson (*Wells*), 1382.
Brown, 1398.
Jensen (*Ericksen & Maardt*), 1423.
Johnson, 1455.
Solvay, 1525.
Worrall, 1550.
Murray, 1577.
Rowat, 1578.
Johnson, 1583.
Barlow (*Renard*), 1613.
Lake (*Locke & Locke*), 1676.
Hincheliff, 1705.
Rae, 1745.
Farmer, 1761.
Marrian, 1797.
Perry, 1821.
Burge, jun., 1877.
Wrigley, 1882.
Clark (*Pollock*), 1934.
Cheesbrough (*Fisher*), 1948.
Chatwood & Collins, 1954.
Foster, jun., 2043.
Hill, 2097.
Tongue (*Hogel & Bigelow*), 2115.
Heath, Evens & Heath, jun., 2123.
Robertson, 2136.
Alloway, 2138.
Crampton, 2262.
Milburn & Jackson, 2266.
Rydill, 2274.
Crowther, 2290.
Truswell & Holden, 2477.
Thornton, 2499.
Bird, 2558.
Hargreaves & Robinson, 2596.
Danvers, 2617.
Walton, 2620.
Ross (*Dawson*), 2667.
Mackie, 2693.
Black, 2751.
Smyth & Ramsay, 2752.
Young & Brash, 2823.
Martin & Harper, 2828.
Hacking, Hacking & Mallison, 2858.
Rydill, 2886.
Bryant, 2896.
Aitken, 2948.
Mallet & Scholefield, 2952.
Brakell, 2956.
Wilkinson, jun., Fillingham & Pardoe, 2961.
Clayton, Clayton, jun., & Howlett, 2975.
Rydill, 2979.
Astrop, 2991.
Dickson, 2995.
Browning, 3006.
Macallum, 3040.
Tugby, 3049.
Ashwell, 3073.
Bullough, 3085.
Lake (*Hyatt & Hyatt*), 3101.
Oddy, 3136.
Alison, 3163.
Rowe, 3173.
Withy & Gibson, 3252.
Glazier, 3278.
Harrison, 3288.
Grether, 3290.
Parnacott, 3292.
Kiesling, 3302.
Rae, 3308.
Mills (*Post*), 3318.
Pelly (*Von Horn*), 3330.
Scott, 3355.
De Michele, 3371.
Buchanan, jun., 3376.
Norton, 3443.
Ensor, jun., 3570.
Wilkinson, jun., Fillingham, Pardoe & Glover, 3597.
Whittingham, 3610.
Fillingham & Pardoe, 3669.
Servante, jun., 3720.
Hart & Hart, 3734.
Scott, 3755.

**Drying, &c.—*cont.***
Bullough, 3770.
Love, 3780.
Denis, 3801.
Magnus, 3831.
Haseltine (*Craven*), 3843.
Fereday, 3882.
Conniff, 3895.
Rydill, 3901.

**Drying-oils; dryers:**
Ford, 223.
Baird, 1516.
Bagley, 3421.

**Dust and draught shields for railway carriages:**
Edwards (*Thornton & Buckland*) 495.
Fox & Gurden, 2218.

**Dust-bins:**
Cain, 2859.

**Dyeing fabrics, yarns, &c.:**
Sieber & Furnevall, 17.
Lloyd, 224.
Ripley (*Depoully*), 283.
Rydill, 370.
Gatty, 561.
Ormerod & Speirs, 1006.
Worrall, 1024.
Johnson (*Hainisch & Hainisch*), 1076.
Lloyd & Green, 1084.
Lamy, fils, 1091.
Clark (*Bastaert*), 1245.
Gatty, 1312.
Denne & Hentschel, 1347.
Worrall, 1550.
Barlow (*Renard*), 1613.
Scala, 1709.
Morgan-Brown (*Jarosson & Pack*), 1710.
Van Baerle, 1851.
Cooke, 1943.
Todd, 1974.
Gomersall & Gomersall, 2063.
Woore & Watt, 2257.
Dreyfus, 2270.
Rydill, 2274.
Macfarlane & Macfarlane, 2384.
Richardson, 2399.
Denne & Hentschel, 2429.
Duncan & Duncan, 2648.
Haseltine (*La Monte, Bare & Clayton*), 2670.
Gatty, 2692.
Micheá, 2786.
Micheá, 2787.
Tongue (*Feron*), 2819.
Smith (*Vigoureux*), 3145.
Chiffray, 3545.
Ramsden & Tankard, 3616.
Ramsden & Tankard, 3620.
Fillingham & Pardoe, 3669.
Wilkinson, 3703.
Rydill, 3901.
Higgin & Stenhouse, 3949.

**Dyes and printing colours:**
Curtis, 327.
Smith, 425.
Ormerod & Speirs, 1006.
Lamy, fils, 1091.
Christy, jun., & Bobrownicki, 1492.
Smith, 1802.
Tourre, 1878.
Downing, 1975.
Thom & Stenhouse, 2186.
Dreyfus, 2270.
Duncan & Duncan, 2648.
Meister, Lucius & Brüning, 2649.
Micheá, 2786.
Micheá, 2787.
Tongue (*Feron*), 2819.
Nicholson, 3007.
Nicholson, 3094.
Price, 3096.
Rave, 3270.

## E.


**Earrings:**
Ward, 289.
Goss, 3129.

**Earthenware; porcelain; imitation ceramic ware:**
Newton (*Morgan*), 266.
Johnson (*Caldwell*), 340.
Hunt (*Thompson*), 512.
Smith (*Martin*), 768.
Jackson, 814.
Herrmann & Laurent, 1041.
Lüttringhaus, 1075.
Davey, 1443.
Monckton, 1460.
Smith & Willans, 1876.
Wrigley, 1883.
Thwaites, Fondeville & Bertin, 2003.
Lipscombe, 2450.
Emmens, 2453.
Lafargue, 2668.
Smith, 2830.
Hughes (*Wilbaux*), 2833.
Tugby, 3049.
Stocker, 3062.
Goss, 3129.
Menet, Gally, Oswald & Peigner, 3133.
March, 3312.
Perry, 3316.
Bonneville (*Avril*), 3317.
Scott, 3355.
Ensor, jun., 3570.
Newton (*Tilghman*), 3626.
Bacon, 3635.
Claus, 3758.

**Earthy salts:**
Clark (*Blanchard, Bang & Provost*), 388.
Perkins, 642.
Abel (*Ville*), 958.
Clark (*Pollock*), 1934.
Morfit, 2341.
Morfit, 2344.
Morfit, 2357.

**Easels:**
Lake (*Curtis*), 1499.
North, 3907.

**Economising fuel.** *See* "Fuel."

**Edge tools.** *See* "Tools."

**Effervescing draughts.** *See* "Aërating."

**Egg beaters or mixers:**
Jowett, 336.
Muschamp, 1040.

**Ejectors for squeezing machines.** *See* "Squeezing."

**Elastic compounds.** *See* "India-rubber."

**Elastic hose stockings for horses.** *See* "Medical treatment of animals."

**Electric telegraphs.** *See* "Telegraphs (electric)."

**Electricity, galvanism and magnetism:**
Highton, 4.
Low, 33.
Bagge, 108.
Hollingworth, 229.
Clark (*D'Arlincourt*), 255.
Seymour, 258.
Johnson (*Arson*), 312.
Bell, 362.

**Electricity, &c.—*cont.***
Bonneville (*Allen & Dewey*), 375.
Wheatstone & Stroh, 473.
Highton, 485.
Jaques & Oakley, 546.
Saunders, 644.
Adams, 664.
Lake (*Morrell*), 680.
Ozanne, 707.
Garneri, 715.
Mewburn (*Fastré*), 779.
Lake (*Batchelder*), 783.
Graham, jun., 807.
Pulvermacher, 809.
Holten (*Hansen & Jürgensen*), 823.
Lake (*Field & Andrews*), 828.
Lake (*Field & Andrews*), 829.
McEvoy, 832.
Jaques & Oakley, 851.
Owen, 886.
Darlow, 888.
Newton (*Schneider*), 917.
Bailey, 949.
Rossignol, 990.
Palmer (*Errani & Anders*), 1126.
Little, 1207.
Oppenheimer, 1253.
Johnson (*Gramme & D'Ivernois*), 1254.
Richard, 1271.
Darlow, 1334.
Fitz Gerald & Molloy, 1376.
Lake (*Batchelder*), 1378.
Highton, 1423.
Ray (*Duchamp*), 1489.
Edison, 1453.
De Mignot & Ganter, 1481.
Carr & Barlow, 1520.
Sanderson, 1569.
Figatner, 1596.
Slater, 1628.
Highton, 1638.
Darlow, 1665.
Newton (*Douillard*), 1729.
Russell & Sax, 1731.
Faure, 1740.
Faure, 1742.
Gilbert, 1753.
Doubelt (*Kniaghininsky, Sewastganoff & Dornowo*), 1822.
Young, 1912.
Siemens (*Siemens*), 1919.
Morgan-Brown (*Gallaher*), 2073.
Ritchie, 2078.
McEvoy, 2085.
Chambers, 2103.
Allen & Fitzgerald, 2208.
Stanley, 2213.
Spagnoletti, 2240.
Fairholme, 2260.
Gill, 2261.
Lake (*Mueller*), 2460.
Lake (*Pope*), 2461.
Gally, 2481.
Hunt (*Garratt*), 2483.
Haseltine (*Moses*), 2493.
Brookes (*Augsburger Kammgarnspinnerei*), 2498.
Dann (*Rickard*), 2559.
Lake (*Tirrell, Flether & Cutler*), 2587.
Samuel (*Electric Gas Lighting Co.*), 2592.
Cunningham & Cunningham, 2702.
Johnson (*Forquignon & Ehrmann*), 2712.
Walker, 2723.
Pulvermacher, 2771.
Owen, 2815.
Maddock, 2846.
Siemens (*Siemens*), 2923.
Doubelt (*Kniaghininsky, Sewastganoff & Dornowo*), 2945.
Mills (*Davis*), 2970.
Chapin, 2973.
Hayward, 2996.
Bezer & Millar, 3114.
Beil, 3158.
Ridpath & Sherring, 3167.
Darlow, 3221.
Jennings (*Craig*), 3230.
Zanni, 3262.
Lake (*Batchelder*), 3299.
Stearns, 3344.
Randall (*Foote*), 3368.

**Electricity, &c.—*cont.***
Sykes & Francis, 3448.
Van Choate, 3474.
Wetton, 3492.
Owen, 3512.
Ramsden, 3520.
Wellesley (*Von Scheliha*), 3536.
Young, 3548.
Bezer, 3565.
Haseltine (*Gray & Barton*), 3586.
Seymour, 3600.
Evans, 3666.
Owen (*Teuchert*), 3672.
Henry (*Ehrmann*), 3692.
Winter, 3701.
Moseley, 3802.
Konn (*Ladiguine*), 3809.
Welton, 3823.
Noad, 3839.
Lockyer, 3846.
Phelps, 3936.
Johnson (*Gauduin, Mignon & Rouart*), 3970.

**Electro-plating.** *See* "Coating metals."

**Electro-typing:**
Newton (*Knight*), 1012.
Greene, 1056.
Dawson & Dawson, 1626.
Noad, 3839.

**Elevators.** *See* "Hoists."

**Embalming human bodies:**
Barlow (*Rousseau, jun., & Cochard*), 464.

**Embankments; banks:**
Simons & Brown, 494.
Manico, 1090.

**Embossing; producing raised patterns:**
Hughes, 15.
Hyatt, 40.
Bayly, 319.
Birdsall, 382.
Wright, Broom & Bruce, 654.
Lanteigne, 848.
Middleton, 945.
Hill, 986.
Holloway, 1561.
Phillips, 1956.
Bonneville (*De Mestre*), 2211.
Pinches, 2409.
Smith, 2646.
Carwood, 2935.

**Embossing articles of confectionery.** *See* "Confectionery."

**Embroidering.** *See* "Sewing."

**Emery, sand and glass papers, ropes and cords; emery cloth; separating and sorting emery; sand-papering machines:**
Lake (*Hitchcock*), 405.
Edwards, 1379.
Green (*Utsch*), 2412.
Ransome, 2894.

**Enamelling; enamels:**
Edwards, 73.
Simpson, 146.
Werner, 865.
Manent, 963.
Davey, 1443.
Thwaites, Fondeville & Bertin, 2003.
Leaker, Norman & Leaker, 2238.
Smith, 2830.
Hughes (*Wilbaux*), 2833.
Nicholls, 3157.
Edwards, 3166.

**Endorsing apparatus.** *See* "Stamping."

**Enemas:**
Kay & Kay, 1173.
Arnold, 1404.
Mattson, 2251.

**Engraving; etching:**
Hughes, 15.
Baggs, 108.
Marsden, 499.
Lanteigne, 848.
Clark (*Minter*), 1614.
Dawson & Dawson, 1626.
Tongue (*Favier*), 1946.
Bartlett, 2215.
Hughes (*Wilbaux*), 2833.
Courtenay, 2848.

**Envelopes; postal wrappers; combined envelopes and paper:**
Hunt (*McCrea*), 450.
Haggart, 604.
Middleton, 945.
Pollock, 1755.
Le Mornier & Cochet, 1844.
Evans, 3293.
Lamacraft, 3514.

**Epsom salts.** *See* "Medicines."

**Erasing-fluids:**
Lake (*De Voy*), 2342.

**Etching.** *See* "Engraving."

**Evaporating.** *See* "Heating."

**Excavating:**
Hanscom, 181.
Gowans, 978.
Hurd & Firth, 1036.
Robertson, 1675.
Milroy, 1788.
Cunningham, 2019.
Love, 2179.
Cunningham, 2190.
Shepherd & Stuckey, 2756.
Story & Lynde, 2791.
Hurd & Simpson, 3241.
Böhringer, 3639.
Love, 3780.

**Excreta (treating).** *See* "Manure."

**Exercises.** *See* "Games."

**Exhausting air.** *See* "Air pumps."

**Explosive compounds.** *See* "Gunpowder."

**Expressing moisture.** *See* "Drying."

**Extinguishing fire.** *See* "Fire-engines."

**Extinguishing gas.** *See* "Gas extinguishers."

**Extracting metals from their ores.** *See* "Metals (smelting)."

**Extracts:**
Curtis, 327.
Cunningham & Corbin, 361.
Johnson (*Adamson*), 1051.
Warry, 1162.
Deiss, 2476.
Von Hennings, 3628.

**Eye cups for dry cupping the eye.** *See* "Surgery."

**Eye protectors.** *See* "Spectacles."

**Eyelets; eyeletting machines:**
Mawhinney (*Wiggin*), 1403.
Clark (*Huet*), 1678.
Harris & Holding, 1960.
Bousfield (*Heaton*), 2707.


## F.


**Fabrics; imitation fabrics:**
Oldroyd & Oldroyd, jun., 167.
Walker, 196.
Walker & Walker, 957.
Darlow, 1334.
Henson & Poole, 1424.
Oldroyd, Oldroyd & Johnson, 1444.
Drinkwater, 2625.
Davidson, 2868.
Lasché, 2893.
Balin, 3001.
Smith (*Vigoureux*), 3145.
Walker & Walker, 3184.
Gedge (*Gaudefroy, fils*), 3712.

**Fabrics (elastic):**
Turner, 2225.
Daft, 2411.
Franklin, 2825.
Tebbutt, 3315.
Turner, 3418.
Hughes (*Winslow*), 3424.

**Fæcal matters employed in producing electric currents.** *See* "Electricity."

**Fall-off mechanism in spinning:**
Lake (*Sutherland*), 1418.

**Fans (hand):**
Engel, 1388.
Robison, 2755.

**Fans or blowers.** *See* "Blowing engines."

**Fats.** *See* "Oils (animal)."

**Feathers:**
Johnson (*Adamson*), 973.
Magaud, 2113.

**Feed mechanism for machines.** *See* "Propelling."

**Feeding bottles:**
Stocker, 154.
Gedge (*Saint-Aubin*), 1047.
Kay & Kay, 1173.
Hicks, 2555.
Stocker, 3062.
Pode, 3430.

**Feeding steam-boilers with water.** *See* "Steam-boilers (water-feeding)."

**Feeding troughs or bins for sheep, &c.** *See* "Troughs."

**Felted fabrics.** *See* "Fulling."

**Fences; hurdles:**
Robson, 86.
Lloyd, 1482.
Douglass, 2628.
Camroux, 2708.
Welch, 2763.
Burnie, 2853.
Ross, 3109.
Brown, 3664.
Tuddenham, 3762.

**Fenders for caissons.** *See* "Caissons."

**Ferrules for pitchforks.** *See* "Pitchforks."

**Fertilisers.** *See* "Manure."

**Fettling or lining furnaces.** *See* "Furnaces."

**Fibres:**
Smith (*Du Motay*), 2.
Toepler, 3.
Fish, 6.
Fish & Wotherspoon, 7.
Pearsall, jun. (*Pearsall*), 49.
De Negri, 76.
Hodgart (*Jones*), 88.
Madden (*Bourne*), 118.
Walker (*Sugden*), 166.
Oldroyd & Oldroyd, jun., 167.
Hughes (*De Labarre*), 191.
Walker, 196.
Ungerer, 257.
Annandale, jun., 276.
Dobson, Rushton & Dobson, 292.
Petrie, jun., 307.
Gibbs & Borwick, 314.
Lake (*Hitchcock*), 405.
Dobson, Rushton & Dobson, 434.
Barraclough & Barraclough, 441.
Richardson, 456.
Gardner, 491.
Browne (*Count of Montebello*), 519.
Rowan, 584.
Wallis & Bradshaw, 594.
Granville, 605.
Lawson (*Girardoni*), 625.
Lake (*Hail*), 717.
Clachar (*McArthur & Kerr*), 791.
Butchart, 934.
Lake (*Chase & Platt*), 961.
Don & Wright, 970.
Stevenson, 1003.
Lake (*Swift*), 1044.
Mills (*Hutchinson*), 1140.
King, 1148.
Crighton, 1152.
Richardson & Fidler, 1230.
Cunningham, 1231.
Cowper, 1265.
Duff, 1293.
Menzies & Davies, 1476.
Bonneville (*De Massue*), 1553.
Boone & Herman, 1590.
Mather, 1603.
Irvine & Mackintosh, 1604.
Barlow (*Renard*), 1613
Dickson, 1643.
Mirfield & Scott, 1661.
Riddell, 1690.
McBride, 1721.
Gray, 1722.
Dupont, 1769.
McFarlane, 1779.
Lee, 1804.
Van Baerle, 1851.
Birch, 1879.
Davidson, 1896.
Salt, 1901.
Whitaker & Ashworth, 1933.
Noble, 2006.
Alloway, 2138.
Paterson & Messrs. Sanderson, 2153.
Milburn & Jackson, 2266.
Gedge (*Jourdeuil & Parisot*), 2322.
Rushton & Dobson, 2373.
West (*Du Bois*), 2410.
Blyth & Southby, 2417.
Denne & Hentschel, 2429.
Routledge, 2431.
Clark (*Chauffourier*), 2478.
Henry (*Pinel & Lecour*), 2500.
Noad, 2610.
Cropper, 2682.
Wilkinson, 2698.
Holden, 2730.
Lake (*Kendall*), 2740.
Hughes (*Daudenart & Verbert*), 2746.
Smyth & Ramsay, 2753.
Michel, 2787.
Duffaud & Frear, 2797.
Watson, 2904.
Rydill, 2979.
Dickson, 2995.
Pooley & McDine, 3011.
McNaught & McNaught, jun., 3044.
Johnson (*Purvis*), 3171.
Foley, 3198.
Morgan-Brown (*Dunham*), 3213.
Glazier, 3278.
Mills (*Post*), 3318.
Richardson, 3369.
Cowper, 3382.

**Fibres**—*cont.*

Whitehead, 3383.
Clark (*Dederick*), 3398.
West & West, 3402.
Norton, 3443.
Seitz, 3446.
Grosvenor, 3447.
Birch, 3503.
Ditchburn, 3575.
Heath, Evens & Heath, jun., 3644.
Andrews, 3645.
Andrews, 3646.
Sinclair, 3716.
Denis, 3801.
Holker, 3851.

**Files and clips:**

Furlong, 808.
Lauranson (*Toiray-Mawrin*), 2479.
Morgan-Brown (*Amberg*), 3220.

**Files and rasps:**

Brandon (*Weed*), 628.
Johnson (*Barret & Verdreau*), 1121.
Bousfield (*Heaton*), 1591.
Jackson & Jackson, 1601.
Haseltine (*Alexander*), 2382.
Hughes (*Stute*), 3203.
Newton (*Tilghman*), 3626.
Cornforth & Dangerfield, 3819.

**Filtering; straining; purifying water:**

Earl of Caithness, 48.
Fox, 201.
Curtis, 327.
Cresswell, 416.
Cook & Henderson, 422.
Robey, 435.
Wilson, 446.
Fulda, 448.
Blackburn, 671.
Denton & Field, 742.
Heaton & Francis, 765.
Henderson (*Chapusot*), 926.
Badin, 1065.
Barrow & Crosfield, 1171.
Lake (*Grell*), 1176.
Ferry, 1205.
Morris, 1386.
Danchell, 1394.
Robey, 1421.
Fox, 1427.
Robertson, 1675.
Dorsett, 1892.
Miller, 2033.
Alloway, 2138.
Warneck, 2177.
Gill, 2361.
Clark (*Blanchard*), 2365.
Brown, 2279.
Morfit, 2341.
Morfit, 2357.
Barton, 2393.
Lake (*Brooks*), 2425.
Deim, 2476.
Sebille, 2491.
Goodall, 2515.
Gerland & Johnson, 2569.
Scott, 3028.
Meunier, 3164.
Field, 3348.
Scott, 3355.
Mewburn (*Farinaux*), 3404.
Johnson, 3483.
Curror & Dewar, 3529.
Lake (*Kersting*), 3737.
Haseltine (*Craven*), 3848.
Henderson (*Demailly*), 3852.
Badin, 3913.
White & Hendry (*Hale, jun.*), 3930.
Patrick, 3946.

**Finger protectors.** *See* "Muffs."

**Finishing, dressing, singeing, shearing, folding and pressing woven fabrics, yarns, &c.**

Whittaker, 132.
Ripley (*Depouilly*), 283.
Todd & Winn, 351.
Sellars, 398.
Barraclough & Barraclough, 441.

**Finishing, dressing, &c.**—*cont.*

Wilson & Lendrum, 638.
Brearley, 726.
Cooper, 741.
Worrall & Kershaw, 1070.
Hacking & Hacking, 1142.
Clark (*Bastaert*), 1245.
Smith, 1291.
Crabtree, Messrs., 1416.
Davey, 1610.
Nicoll, 1657.
Shaw & Shaw, 1685.
Farmer, 1761.
Crévissier & Lecamp, 1775.
Lindley, 1819.
Mills (*Dorlan*), 2029.
Simonett & Roberton, jun., 2038.
Foster, jun., 2043.
Gomersall & Gomersall, 2063.
Paterson & Messrs. Sanderson, 2153.
Turner, 2225.
Crowther, 2290.
Nussey & Leachman, 2370.
Crawford & Crawford, 2418.
Robertson, 2586.
Wilkinson, 3703.
Tindal, 3710.
Chambers & Chambers, jun., 3742.
Urquhart & Lindsay, 3836.
Ward, 3850.
Scattergood, 3881.

**Finishing, glazing or polishing enamelled and colored papers:**

Symonds, 3296.

**Finishing natural and imitation leather:**

Denne & Hentschel, 1348.
Hodgson, 1719.
Crévissier & Lecamp, 1775.
Newall & Barker, 2012.
Jenkins, 2148.
Newton, 2539.
Grosvenor, 3447.

**Finishing printed sheets of paper:**

Morris, 1728.
Clark (*Ford*), 3572.

**Fire-alarms:**

Zimdars, 553.
Zimdars, 3340.

**Fire-arms, cannons and mortars (compressed air):**

Wright, Broom & Bruce, 654.

**Fire-arms, guns and ordnance; gun carriages:**

Giffard, 21.
Scott, 42.
Samain, 69.
Swinburn, 110.
Wilson, 129.
Hughes (*Parker*), 180.
Russell, 227.
Clark (*Burgess*), 263.
Woodward, jun., & Emme, 267.
Macomber, 268.
Vernon, 335.
Walker, 445.
Lake (*Barnest*), 521.
Murphy, 559.
Wright, Broom & Bruce, 654.
Newton (*Thompson*), 675.
Rose, 751.
Clark (*Miles*), 762.
Newton (*Thompson*), 854.
Parsons, 878.
Lake (*Caumon (Absterdam)*), 1135.
Duncan & Macnaughton (*Kerr & Bryiges*), 1137.
Whitworth, 1298.
Piddington (*Francotte*), 1324.
Lake (*West*), 1408.
Farquharson, 1592.
Wallis, 1605.
Doubelt (*Lecoff*), 1649.
Cole, 1724.
Riley, 1825.
Swinburn, 1895.
Wallis, 1917.

**Fire-arms, &c.**—*cont.*

Vine, Vine, Brown & Skinner, 2010.
Vavasseur, 2025.
Jones, 2121.
Callander, 2122.
Blake, 2224.
Adams, 2258.
Clark (*Gueury & Dubois*), 2281.
Galand, 2308.
Ansell, 2349.
Clark (*Burgess*), 2354.
Henry, 2540.
Clark (*Byers*), 2546.
Mathews, 2579.
Piddington (*Tackels*), 2662.
Johnson (*Forquignon & Ehrmann*), 2712.
Piers & Armitage, 2856.
Brookes (*Heusser*), 3181.
Smith (*Baranovsky & Broadwell*), 3186.
Richards, 3195.
Lake (*Le Faure & Villain*), 3204.
Braendlin, 3257.
Harris, 3327.
De Latouche, 3468.
Clark (*Marelli & Marelli*), 3488.
Allport, 3518.
Smiles, 3519.
Newton (*Woodbridge*), 3702.
Henry, 3727.
Anson, 3791.
Morris, 3883.
Clark (*Dumonthier*), 3917.
Johnson (*La Société Industriell Suisse*), 3955.
Spencer & Smith, 3964.

**Fire-arms (charging, discharging and working):**

Giffard, 21.
Wier, 711.
Longsdon, 787.
Lake (*Thomas*) 896.
Lake (*Thomas, Menere & Thomas*) 897.
Gilbee (*Bazzichelli*), 2860.
Morgan-Brown (*Hotchkiss*), 3065.
Smith (*Baranovsky & Broadwell*), 3186.
Richards, 3195.
Lake (*Lafaure & Villain*), 3204.
Braendlin, 3257.
Holman, 3428.
Cornish, 3661.
Allan, 3761.
Harman, 3825.
Rendel, 3826.

**Fire-arms (discharging by means of india-rubber cords):**

Ayckbourn, 2175.

**Fire-arms (elementary).** *See* "Teaching."

**Fire-bricks.** *See* "Bricks."

**Fire-engines; extinguishing fire; floating fire-engine stations:**

Waygood, 97.
Lake (*Allen*), 163.
Field & Cotton, 365.
Gedge (*Welter*), 488.
Wright, Broom & Bruce, 654.
Anderson, 729.
Lake (*Ellsworth*), 900.
Clark (*Patrick*), 902.
Manent, 963.
Don & Wright, 970.
Maw, 1086.
Stone, 1115.
Mac Kinnon, 1464.
Sanderson, 1569.
Smith, 1750.
Millward (*Fricker, jun.*), 1945.
Robertson (*Robertson*), 1982.
Lake (*Walton*), 2067.
Warneck, 2177.
Gedge (*Rives*), 2324.
Davies, 3012.
Church, 3396.
Tully & Robinson, 3467.
Lattimer, 3927.

**Fire-escapes:**
Nobbe, 250.
Bear, 410.
Bayley, 496.
Racey & Young, 498.
Clark (*Patrick*), 902.
Smith, 911.
Fairholme, 1197.
Mosely, 1730.
Winter, 2562.
Clark (*Lindenblith*), 2809.

**Fire-guards; cinder-guards:**
Camroux, 2708.
Kenyon, 3088.
Smith, 3313.

**Fire-irons:**
Fothergill, 63.
Kenyon, 3088.
Punshon, 3374.

**Fire-lighters.** *See* "Fuel."

**Fire-places; stoves; fire-baskets:**
Brown, 105.
Williams, 303.
Lake (*Morison*), 373.
Billing, 391.
Rice, 520.
Mills, 1038.
Shorland, 1169.
Eagles (*Bergehausen, Philipps & Kiesling*), 1263.
Carter, 1359.
Crabtree, Messrs., 1416.
Fearnley, 1461.
Berry, 1497.
Berry, 1498.
Vaughan (*Franklin*), 1902.
Phillips, 1956.
Wallace, 1999.
Goold, 2182.
Cressey, 2230.
Mortlock, 2247.
Morgan-Brown (*Houghton*), 2268.
Newton & Price, 2402.
Blackham, 2421.
Newton (*Tissot*), 2466.
Truswell & Holden, 2477.
Warry, 2513.
Lochhead, 2518.
Stone, 2543.
Bryce, 2548.
Green, 2560.
Cox, 2583.
Robertson, 2586.
Mc Lean, 2681.
Camroux, 2708.
Mines, 2733.
Lake (*Briggs*), 2741.
Gibbs, 2742.
Thornton, 2778.
Aitken, 2948.
Brakell, 2966.
Kenyon, 2972.
Corry, 2981.
Sims & Holmes, 3042.
Russell, 3138.
Walker, 3140.
Bateman, 3185.
Looker, 3291.
Smith, 3313.
Shutt & Brooks, 3351.
Ash, 3352.
Punshon, 3374.
Verrier, 3375.
Clark (*Gold*), 3397.
Blyth, 3423.
Blocksage, 3461.
Harrison, 3472.
Young, 3574.
Longden, 3640.
Koettgen (*Kunstädler*), 3794.
Symington, 3880.

**Fireproofing and rendering uninflammable:**
Hyatt, 25.
Hyatt, 40.
Nickson, 542.
Fothergill & Rumble, 668.
Nicoll, 836.
Lake (*Cornell*), 960.

**Fireproofing, &c.—*cont.***
Gray (*Renox*), 1215.
Walker & Ragon, 1288.
Turner, 1396.
Hobbs & Hart, 1611.
Nicoll, 1657.
Lyttle, 1811.
Hill, 2097.
Emmens, 2451.
Lochhead, 2518.
Glasier, 3278.
Tall, 3444.
Smith, 3657.

**Fire-screens; banner screens:**
Chancellor, 3015.

**Fire-works:**
Johnson (*Lamarre*), 827.

**Firing or singeing fabrics.** *See* "Finishing."

**Fish kettles.** *See* "Saucepans."

**Fish knives and forks.** *See* "Knives."

**Fish (preserving):**
Abate, 1853.
Clark, 3393.
De Melortie & Woods, 3803.

**Fishing lines and nets:**
Fish & Wotherspoon, 7.
Lewis & Ward, 1449.

**Fixing colouring matters on prepared fabrics or yarns:**
Lloyd, 224.

**Flasks.** *See* "Bottles."

**Flax spinning.** *See* "Spinning, twisting."

**Floating mattresses.** *See* "Upholstery."

**Flocked fabrics and papers:**
Drinkwater, 2625.

**Floor and stair cloths:**
Walker, 196.
Hulme & Hulme, 372.
Hulse & McKay, 381.
Hulme, 1794.
Downing, 1975.
Wells, 1983.
Thorpe, 2427.
Walton, 2620.
Walton, 2845.
Glazier, 3278.
Neill, 3827.

**Floors:**
Norton, 357.
Lake (*McLeod*), 443.
Musgrave & Musgrave, 505.
Fothergill & Rumble, 668.
Gregg & Evans, 771.
Thomas, 793.
Stone, 1115.
Norton, 1149.
Lyttle, 1264.
Walker & Ragon, 1288.
Turner, 1396.
Jaynor, 2361.
Emmens, 2451.
Glasier, 3278.
Basford, 3288.
Worssam, 3442.
Tall, 3444.
Garbutt, 3679.
Claus, 3758.
Stewart, 3860.

**Floors (cleaning or sweeping):**
Sprague, 306.

**Flour (manufacturing).** *See* "Grinding corn."

**Flow of fluids (regulating the).** *See* "Valves."

**Flower stands:**
Camroux, 2708.
Hébert, 3651.

**Flower tubes.** *See* "Bouquet-holders."

**Flower vases.** *See* "Vases."

**Flowers and foliage (artificial):**
Roquencourt, 574.
Tongue (*Favier*), 1946.

**Flues and chimneys; cleaning chimneys; cowls:**
Johnson (*Sellers & Sellers*), 50.
Smith, 182.
Newton (*Morgan*), 266.
Williams, 303.
Allibon & Manbré, 318.
Edwards & Robinson, 475.
Cameron, 570.
Gray, 744.
Benson (*Hayes*), 802.
Lake (*Bailey, Goodrich & Locke*), 857.
Stevenson, 870.
Cowper, 887.
Wilson, jun., 1093.
Ramsden, 1172.
Pollock & Mitchell, 1200.
Morgan-Brown (*Goulding*), 1276.
Boyle, 1296.
Johnson (*Wilson*), 1362.
Kochs, 1339.
Sutherland, 1433.
Sheffield, 1435.
Fearnley, 1461.
Dupré, 1541.
Wood, 1542.
Johnson, 1583.
Lake (*Hamilton*), 1655.
Lake (*Brindle*), 1666.
Charpentier, 1720.
Perry, 1821.
Lynch, 1861.
Burge, jun., 1877.
Wrigley, 1882.
Crosland, 1962.
Edwards (*Thornton*), 1969.
Wallace, 1999.
Stewart & Defty, 2020.
Jensen (*Heegaard*), 2022.
Ashwell, 2134.
Viehoff & Voss, 2151.
Siemens (*Siemens*), 2152.
Smeaton, 2159.
Knott (*Speakman*), 2171.
Partington, 2233.
Bousfield (*Wilson*), 2263.
Warren, 2358.
Harrison, 2371.
Newton & Price, 2402.
Blackham, 2421.
Haseltine (*Banta*), 2440.
Lake (*Harding*), 2443.
Lipscombe, 2450.
Newton (*Tissot*), 2466.
Winskill, 2495.
Lochhead, 2518.
Frickinger, 2527.
Bird, 2558.
Torr & Johnstone, 2642.
Lake (*Briggs*), 2741.
Thornton, 2778.
Young & Brash, 2823.
McColl & Gillespie, 2939.
Meyer, 2951.
Wilson, 2977.
Ferrie, 3008.
Sims & Holmes, 3042.
Tugby, 3049.
Hargreaves & Robinson, 3062.
Ashwell, 3073.
Bullough, 3086.
Milner, 3117.
Partington & Riley, 3165.
Macfarlane, 3198.
Brown, 3225.
Parks, 3260.
Basford, 3285.

**Flues, &c.—*cont.***
Hedley, Smith & Hedley, 3300.
Crosland, 3310.
Smith, 3313.
Wilson, 3347.
Clark (*Gold*), 3397.
Blyth, 3423.
Tall, 3444.
Brunner (*Schulz & Heyl*), 3470.
Gedge (*Palou*), 3485.
Ensor, jun., 3504.
Papier, 3521.
Ensor, jun., 3570.
Newton (*Dod*), 3588.
Rowan, 3590.
Knott, 3622.
Longden, 3640.
Ivory, 3683.
Sheffield, 3683.
Newton (*Woodbridge*), 3702.
Taylor, 3725.
Morgan-Brown (*Brunt*), 3731.
Hilles, 3739.
Key, 3744.
Musgrave, 3790.
Newton, 3798.
Rydill, 3901.
Rydill, 3938.
Day, 3961.

**Fluids for obliterating marks or stains in white linen:**
Viel, 1375.

**Fluting.** *See* "Goffering."

**Flyers.** *See* "Spindles."

**Folding newspapers, &c.:**
Bean, 2267.
Newton (*Hoe*), 2561.
Foster, 3435.
Clark (*Ford*), 3672.

**Folding sheep and cattle:**
Camroux, 2708.
Burnie, 2853.
Brown, 3664.

**Food for cattle and other animals:**
Carson & Toone, 665.
Coales, 1013.
Spratt, 1468.
Lake (*Cavagé*), 1586.
Valleton & Planque, 2783.
Follows, Bate & Edwards, 2949.
Johnson (*Leconte*), 3956.

**Food for man (preserving and preparing).** *See* "Preserving food."

**Foot-paths.** *See* "Roadmaking."

**Foot-warmers.** *See* "Heaters."

**Forceps:**
Mayer, 1582.

**Forcing air or gas through molten iron:**
Warner, 189.
Powers, 663.
Spencer, 3967.

**Forcing frames.** *See* "Horticulture."

**Forges:**
Hutton, 236.
Bonneville (*Furon*), 237.
Wright, Broom & Bruce, 654.
Bartle (*Bartle*), 2110.
Truswell & Holden, 2477.
Williams, 3919.

**Forging metals.** *See* "Metals (forging)."

**Forts.** *See* "Batteries."

**Fountains; drinking fountains:**
Burr (*Prall*), 258.
Rosier, 1166.
Sebille, 2491.

**Fraud (prevention of):**
Perry, 688.
Cardozo & Taylor, 866.
Webb, 1225.
Durham & Hupton, 1238.
Longman & Alderman, 1402.
Brown, 1671.
Newton (*Johnson*), 1780.
Lake (*Jobb*), 1889.
Hodges, 1965.
Starr, 2079.
Wier, 2145.
Ashlin & Clover, 2245.
Davey, 2462.
Robinson, 2663.
Haseltine (*La Monte, Saxe & Clayton*), 2670.
Walker, 2723.
Whitehouse & Phillips, 3016.
Griffiths & Busby, 3069.
Grantham, 3353.
Prendergast, 3495.
Betts, 3587.
Gedge (*Chambeaux*), 3605.
Barrington, 3745.

**Freezing-machines.** *See* "Refrigerating."

**Fringes.** *See* "Trimmings."

**Fringes of textile fabrics (combing):**
Shields, 2829.

**Fronts for personal wear.** *See* "Shirts."

**Fruit (artificial):**
Tongue (*Favier*), 1946.

**Fruit (preserving and cooling):**
Johnson (*Adamson*), 1051.
Abate, 1853.
Jolliffe, 1979.
Dufrené (*Sacc*), 2529.
Clark, 3393.
Chinnock, 3425.

**Fuel and fire lighters; saving fuel:**
Johnson (*Sellers & Sellers*), 50.
Fothergill, 63.
Schemioth, 94.
Sellars, 100.
Lloyd, 193.
Lake (*Muller & Eichelbrenner*), 200.
Box, 282.
Williams, 303.
Newton (*Harris*), 308.
McDougall, 311.
Jarman & Mitchell, 333.
Sutherland, 385.
Monckton, 423.
Gedge (*Welter*), 433.
Warlich, 454.
Setchell, 457.
Rice, 520.
Lake (*Diehl*), 527.
Cory & Cory, 555.
Porter & Lane, 588.
Hamer, 630.
Wright, Broom & Bruce, 654.
Abel (*Durfee*), 685.
Elson, 695.
Barnett & Vokins, 797.
Benson (*Hayes*), 802.
Hedley, 817.
Lake (*Bailey, Goodrich & Locke*), 857.
Munro, 933.
Caratti & Church, 954.
Sellars, 989.
Johnson (*Ponsard Metallurgical Society*), 1018.
Webster, 1027.
Glaysher, 1128.
Holmes & Hollinshead, 1235.
Eagles (*Bergehausen, Philipps & Kiesling*), 1263.

**Fuel, &c.—*cont.***
Hodge & Hodge, 1344.
Parks, 1366.
Johnson (*Peillon*), 1383.
Hamel, 1392.
Johnson (*Ponsard Metallurgical Society*), 1409.
Crabtree, Messrs., 1416.
Jensen (*Erichsen & Maardt*), 1423.
Sutherland, 1432.
Hughes, 1433.
Sheffield, 1435.
Jeyes, 1506.
Hughes (*Bicheroux*), 1596.
Gathercole, 1627.
Hanson, 1644.
Lake (*Hamilton*), 1655.
Newton (*Dod*), 1658.
Mc Kenzie, 1681.
Dann (*Féron*), 1699.
Charpentier, 1720.
Harrop & Corbett, 1723.
Lodge, 1744.
Rae, 1745.
McFarlane, 1779.
De Chodzko, 1823.
Bull, 1845.
Dawes, 1857.
Waite, White & Wise, 1872.
Smith & Willans, 1876.
Wrigley, 1882.
Thomas, 1886.
Vaughan (*Franklin*), 1902.
Townsend, 1914.
Crosland, 1962.
Russ, 1964.
Newbold, 2011.
Gorman, 2017.
Todd, 2035.
Vaughan (*Pernot*), 2046.
Downes, 2066.
Cook & Lafone, 2069.
Fern, 2088.
Heath, Evens & Heath, jun., 2123.
Heath, Evens & Heath, jun., 2125.
Ashwell, 2134.
Alloway, 2138.
Gedge (*De Courson, fils*), 2150.
Cheesbrough (*Clough*), 2156.
Hughes, 2157.
Smeaton, 2159.
Knott (*Speakman*), 2171.
Rose, 2232.
Crampton, 2262.
Löbnitz, 2319.
Deere, 2332.
Motard, 2336.
Richardson, Richardson & Spencer, 2337.
Warren, 2358.
Mill, 2367.
Harrison, 2371.
Newton & Price, 2402.
Blyth & Southby, 2417.
Routledge, 2431.
Emmens, 2453.
Newton (*Tissot*), 2466.
Church, 2469.
Winskill, 2495.
Plessner, 2525.
Radcliffe, 2526.
Frickinger, 2527.
Ellefsen, 2534.
Stone, 2543.
Bird, 2558.
Green, 2560.
Thomas, 2575.
Onffroy (*Onffroy & Co.*), 2578.
Robertson, 2586.
Dillon, 2594.
Gerland (*Messrs. Albert*), 2614.
Danvers, 2617.
Clarke, 2629.
Torr & Johnstone, 2642.
Harvey, 2644.
Ramsden, 2650.
Carter, 2651.
Berry, 2665.
Withy & Gibson, 2672.
Ruck, 2711.
Gibbs, 2742.
Edes, 2774.
Thornton, 2778.
Stone, 2790.
Porter, 2800.

**Gas (combining with air)—*cont.***
Broel, 1158.
Lake (*Batchelder*), 1378.
Lake (*Batchelder*), 3299.

**Gas-engines.** *See* "Air-engines."

**Gas exhausters:**
Foulis, 1532.
Carey, 1687.
Russ, 1964.
Davey, 3208.

**Gas extinguishers:**
Bonneville (*Allen & Dewey*), 875.
Ozanne, 707.
Bennett (*Wilson*), 2101.
Lake (*Mueller*), 2460.

**Gas making and purifying; gasometers:**
Scott, 38.
Healey, 85.
Warner, 189.
Lake (*Muller & Eichelbrenner*), 200.
Bonneville (*Gapiand*), 245.
Porter & Lane, 588.
Patterson, 730.
Smith (*Martin*), 768.
Somerville, 776.
Clark (*Floyd, Dieterich & Schüssler*), 901.
Munro, 938.
Caratti & Church, 954.
Johnson (*Joannon*), 971.
Young & Kitt, 981.
Rigod, 983.
Sellars, 989.
Lafrogne, 994.
Johnson (*Ponsard Metallurgical Society*), 1018.
Clark (*Rouillé*), 1032.
Broel, 1158.
Pritchard, 1234.
Holmes & Hollinshead, 1235.
Box, 1309.
Christy, jun. (*Bobrownicki*), 1327.
Lake (*John*), 1332.
Fish, 1362.
Cornish, 1420.
Jensen (*Erichsen & Maardt*), 1423.
Monckton, 1460.
Fearnley, 1461.
Christy, jun., & Bobrownicki, 1492.
Porter & Porter, 1494.
Foulis, 1532.
Harrison & Harrison, 1679.
Carey, 1687.
Vincent, 1707.
Harrison & Harrison, 1708.
Charpentier, 1720.
Clark (*Stancliff & Floyd*), 1747.
Hengst & Muschamp, 1752.
Anderson & Buchanan, 1768.
Shanks, 1771.
Johnson (*Lemaire & Sonnois*), 1791.
Smith & Willans, 1876.
Thomas, 1886.
Townsend, 1914.
Christopher & Lackersteen, 1931.
Russ, 1964.
Gorman, 2017.
Todd, 2035.
Caillot, 2036.
Abel (*Marcus*), 2058.
Cook & Lafone, 2069.
Owen & Underwood, 2109.
Rose, 2232.
Crampton, 2262.
Haseltine (*Fogarty*), 2296.
Warren, 2358.
Chandler, Messrs., 2416.
Emmens, 2453.
Young, Brash & Scott, 2487.
Vincent, 2510.
Parker & Wade, 2528.
Ellefsen, 2534.
Box, 2542.
Spencer (*White*), 2576.
Robertson, 2586.
Lake (*Tirrell, Flether & Cutler*), 2587.
Woodhouse, 2602.
Pollard, Schofield & Butel, 2630.
Torr & Johnstone, 2642.

**Gas making, &c.—*cont.***
Ramsden, 2650.
Ruck, 2711.
Fraser, 2779.
Porter, 2800.
McDougal, 2801.
Harrison & Harrison, 2847.
McKelvie, 2855.
Fisher, 2976.
Shedlock, 3057.
Walker, 3093.
Peebles, 3108.
Chandler, Messrs., 3153.
Malam, 3180.
Vaughan (*Dubois*), 3192.
Macfarlane, 3193.
Cobley & Poynter, 3194.
Davey, 3208.
Weems, 3254.
King, 3275.
Hedley, Smith & Hedley, 3300.
Rae, 3308.
Wilson, 3347.
Manning, 3356.
Harrison & Harrison, 3473.
Howland & McKnight, 3502.
Thorneloe, 3534.
Siemens, 3642.
Shedlock & Shedlock, 3728.
Key, 3744.
Gedge (*De Kerosdo*), 3766.
Lackersteen, 3829.
Simon & Simon (*Sommerfeld*), 3863.
Mann, 3897.

**Gases, vapours or fumes from the burning of pyrites cinders (utilizing):**
Bradburn, 210.

**Gassing fibres in paper making.** *See* "Bleaching paper."

**Gates.** *See* "Doors."

**Gauges; water level indicators:**
Burr (*Prall*), 253.
Bear, 468.
Chadderton, Allmark & Haigh, 1262.
Lake (*John*), 1332.
Keirby, 1636.
Ducomet, 1754.
Taylor, 1904.
Furness, 2009.
Lees, 2248.
Hall, 2550.
Zenger, 2584.
Lafargue, 2668.
Abel (*Orlowski*), 2883.
Hawksley & Wild, 3207.
Lake (*Mekarski*), 3338.
Kennard, 3341.
Bewley, jun., 3363.
Church, 3395.
King, 3544.
Kay, 3602.

**Gauges or guide mechanism.** *See* "Propelling (machinery)."

**Gauze fabrics (weaving).** *See* "Weaving plain."

**Gems or precious stones:**
Nourick & Wild, 22.
Davey, 1443.
Bousfield (*Lewis*), 3415.
Newton (*Tilghman*), 3626.

**Generating force.** *See* "Motive-power."

**Generating steam.** *See* "Steam-boilers."

**Getting coal.** *See* "Mining."

**Gimlets.** *See* "Tools."

**Gimps and cords.** *See* "Trimmings."

**Gin:**
Johnson (*Leconte*), 464.
Johnson (*Leconte*), 3056.

**Ginning cotton.** *See* "Spinning (opening)."

**Girders.** *See* "Beams."

**Glass and its applications:**
Hyatt, 25.
Newton (*Hoe*), 45.
Lake (*Radde*), 121.
Keeling, 150.
Johnson (*Caldwell*), 349.
Scruton, 517.
Rice, 520.
Rust, 567.
Ellis, 611.
Neville, 813.
Stevenson, 870.
Trimmer, 912.
Gedge (*Saint-Aubin*), 1047.
Kay & Kay, 1178.
Sheffield, 1435.
Monckton, 1460.
Allan (*Riddell*), 1475.
Henderson, 1518.
Dupré, 1541.
Doria, 1625.
Wenham, 1640.
Browning, 1789.
Maxwell, 1868.
Smith & Willans, 1876.
Chappuis, 1899.
Vaughan (*Franklin*), 1962.
Peattie, 2042.
Siemens (*Siemens*), 2152.
Linwood, 2203.
Johnson (*La Société Anonyme des Manufactures des Glaces, &c.*) 2220.
Warren, 2358.
Emmens, 2453.
Tongue (*Giery*), 2519.
Stone, 2543.
Hicks, 2555.
Stone, 2580.
Hughes (*Daudenart & Verbert*), 2746.
Pickin, 2826.
Hughes (*Wilbaux*), 2833.
Hunt (*Wells & Zoll*), 2915.
Baylis, 2993.
Preston, 3010.
Harrison, 3205.
March, 3212.
Perry, 3216.
Lake (*Schmitt*), 3223.
Bousfield (*Lewis*), 3415.
Siemens (*Siemens*), 3473.
Newton (*Tilghman*), 3626.
Sheffield, 3683.
Ayres, 3787.
Haseltine (*Craven*), 3843.
Neville, 3862.
Brown & Brown, 3926.
Williams, 3919.

**Glass paper.** *See* "Emery paper."

**Glasses.** *See* "Drinking vessels."

**Gloves:**
Timbrill (*Harrison*), 396.
Browne (*Nörholm*), 749.
Smith, 759.
Morisseau, 925.
Browne (*Bergmann & Hüttemeier*) 1052.
Alekan & Alekan, 1141.
Bousfield (*Heaton*), 2707.
Brewer (*Jowein, Doyen & Co.*) 2804.
Viles, 3663.
Henderson (*Demailly*), 3839

**Glucose.** *See* "Sugar."

**Glue; adhesive liquids:**
Philpott, 2703.

**Furnaces and cupolas—*cont.***

Sanderson & Proctor, 3161.
Macfarlane, 3193.
Head & Brown, 3197.
Bolton, 3240.
Teer, 3243.
Withy & Gibson, 3252.
Longridge, 3259.
Parks, 3260.
Prince (*Hicks*), 3268.
Milner, 3282.
Belleville, 3284.
Horton, 3286.
Parnacott, 3292.
Bentall, 3298.
Hedley, Smith & Hedley, 3300.
Kiesling, 3302.
Crosland, 3310.
Bonneville (*Avril*), 3317.
Wilson, 3347.
Shutt & Brooks, 3351.
Punshon, 3374.
Clark (*Gold*), 3397.
Hahn, 3417.
Siemens (*Siemens*), 3478.
Gedge (*Palau*), 3485.
Cotton, 3497.
Ensor, jun., 3504.
Jenner, 3505.
Jones, 3530.
Young, 3574.
Rowan, 3590.
Garrood, 3603.
Pickup, 3631.
Knott, 3632.
Siemens, 3642.
Taylor, 3655.
Lake (*Roberts*), 3678.
Sheffield, 3683.
Brookes (*Hoevelmann*), 3700.
Toller & Smyth, 3711.
Smith, 3717.
Casson (*Dormoy*), 3763.
Glaze, 3781.
Newton, 3798.
Baker, 3807.
Barton, 3838.
Prideaux, 3898.
Rydill, 3901.
Williams, 3919.
Rydill, 3968.
Bousfield (*Scowden*), 3968.

**Furniture:**

Stocker, 154.
Hulse, 195.
Parry, 239.
Taylor, 304.
Harris & Normington, 397.
Abbott, 614.
Blackburn, 645.
Brode & Brode, 804.
Lock, 805.
Decamps, 844.
Lanteigne, 848.
Lewis, 876.
Telfer, 1030.
Reed, 1066.
Winram, 1068.
Fairholme, 1197.
Groussin, 1206.
Percival, 1318.
Kern, 1450.
Lloyd, 1482.
Lake (*Curtis*), 1499.
Sugden, 1504.
Hawkes & Freeman, 1633.
Whiting, 1639.
Darlow, 1665.
Stother & Milton, 1680.
Atkins, 1686.
Telford, 1810.
Newell, 1890.
Redmayne, 1894.
Lake (*Glassie, Nash & Armes*), 1957.
Thwaites, Fondeville & Bertin, 2003.
Lake (*Chèradame, Le Dreux & Cursel*), 2053.
Smith (*Alliger*), 2246.
Hughes (*Prary*), 2307.
Brodie, 2472.
Hoskins, 2524.
Stidolph, 2588.
Caffall, 2622.
Lawson & Hodgetts, 2679.

**Furniture—*cont.***

Wood, 2705.
Camroux, 2708.
Johnson (*Chamoüin*), 2714.
Osborn, 2764.
Hammer, 2978.
Moss, 2992.
Lake (*Voss*), 3043.
Gaskell & Wright, 3201.
Harrison, 3205.
March, 3212.
Brooks (*Ulmann*), 3314.
Bagley, 3421.
Lloyd, 3638.
Gilsow, 3649.
Hébert, 3651.
Picot, 3677.
Redmayne, 3706.
Sidebotham, 3861.
North, 3907.
Cowie, 3916.
Anderson, 3953.

**Furred skins or peltrys.** *See* "Leather."

**Furs and skins (imitation):**

De Montoison, 12.
De Montoison, 2001.
Davidson, 2868.

**Fusees; fusee cases:**

Dee, 127.
Dee, 158.
Ward, 486.

**Fuses for blasting.** *See* "Blasting."

**Fuses (time) for shells:**

Gilbee (*Bassichelli*), 2860.

## G.

**Gaiters.** *See* "Leggings."

**Galoches:**

Myerns, 1286.

**Galvanism.** *See* "Electricity."

**Galvanized iron scrap (utilizing):**

Becks, 1514.

**Galvanometers:**

Pulvermacher, 2771.

**Game cases for carriages.** *See* "Carriages."

**Game (preserving).** *See* "Preserving food."

**Games and exercises:**

Colborne, 467.
Taylor, 687.
Telfer, 1030.
Hawkes & Freeman, 1633.
Ollard & Barrow (*Gottsberger & Tuppin*), 1647.
Russell & Sax, 1731.
Reynolds, 2598.
Goodall, 2654.
Stevens & Cullum, 2726.
Gedge (*Louineau*), 2965.

**Gargles.** *See* "Medicines."

**Garments for gentlemen's wear.** *See* "Wearing-apparel."

**Garters:**

Edwards, 102.
Tebbutt, 3315.

**Gas and other burners and regulators; gas governors; gas fittings; lighting gas:**

Fothergill, 62.
Schlesinger (*Dixon*), 98.
Lloyd, 193.
Lake (*Myers*), 316.
Lake (*Myers*), 321.
Bonneville (*Allen & Dewey*), 375.
Billing, 391.
Bablon, 616.
Wallace, 634.
Ozanne, 707.
Farquhar, 727.
Lake (*Batchelder*), 783.
Temple & Danter (*Osborn*), 816.
Mathews, 920.
Lake (*Raynor*), 977.
Wigham, 1015.
Lake (*Myers*), 1202.
Gardner, 1249.
Whateley, 1250.
Lenox, 1280.
Carter, 1359.
Lake (*Batchelder*), 1378.
Trotman, 1411.
Swain, 1413.
Fearnley, 1461.
De Mignot & Ganter, 1481.
Porteous & Bruce, 1645.
Smith (*Kastner & Lavignac*), 1648.
Wentworth, 1673.
Newton (*Turner & Vanderpool*), 1905.
Harvie, 1915.
Giroud, 1953.
Phillips, 1956.
Rogers, 1967.
Wallace, 1999.
Gorman, 2017.
Caillot, 2036.
Cook & Lafone, 2069.
Bennett (*Wilson*), 2101.
Linwood, 2203.
Hartley, 2236.
Bray, 2335.
Silver, 2350.
Myers (*Myers*), 2362.
Lake (*Mueller*), 2460.
Judkins, 2577.
Robertson, 2586.
Lake (*Tirrell, Flether & Cutler*), 2587.
Samuel (*Electric Gas Lighting Co.*) 2592.
Woodhouse, 2602.
Lockhart, 2659.
Turton, 2678.
Porter, 2800.
King, 2814.
Sugg, 2841.
Swain, 2874.
Aitken, 2946.
Bernard, 2968.
Hamilton & Paterson, 3061.
Walker, 3093.
Boyes, 3099.
Peebles, 3108.
Goss, 3129.
Goldsmith & Dilkes, 3156.
Harper, 3233.
Blackburn, 3253.
Goldsmith & Dilkes, 3269.
Bennett, 3271.
Lake (*Batchelder*), 3299.
Tully & Robinson, 3467.
Harrison, 3472.
Harrison, 3523.
Gedge (*Chambeaux*), 3605.
Teale, 3652.
Prince (*Andreae*), 3824.
Simon & Simon (*Sommerfeld*), 3863.
Kennelly, 3866.
Quin, 3933.
Camroux, 3950.

**Gas as applied in producing musical sounds:**

Smith (*Kastner & Lavignac*), 1648.

**Gas (combining with air):**

Bradford, 763.
Webster, 1027.

**Gunpowder and other explosive compounds; powder casks:**
Poch, 656.
Watteau (*de Terré & de Mercader*), 752.
Froitzheim, 1509.
Haycraft, 1554.
Muratori, 1588.
Horsley, 1835.
Mackie, 2092.
Newton (*Norrbin & Ohlsson*), 2766.
Gray (*Hall*), 2772.
Ratcliff, 2914.
Lake (*Hyatt & Hyatt*), 3101.
Browne & Davenport, 3144.
Muschamp, 3218.
Hunt, 3775.
Rydill, 3901.

**Guns.** *See* "Fire-arms."

**Gusset webs.** *See* "Weaving carpets."

**Gutta-percha (treatment and application):**
Truman, 482.
Adams, 664.
Thomas, 793.
Lanteigne, 848.
Don & Wright, 970.
Mercier, 1753.
Parnacott, 3292.
Quin, 3953.

**Gutters.** *See* "Drains."

## H.

**Hair and fur:**
De Montoison, 12.
Johnson (*Adamson*), 973.
De Montoison, 2001.
Laycock, 2591.
Delmar, 2739.

**Hair-dressing; chignons; washes and restorers:**
Gahn, 1240.
Doré, 2027.
Bray, 2110.
Wadsworth, 2927.

**Hair pins:**
Shrimpton, 907.
Goss, 3129.

**Hammers; hammering:**
Schlesinger (*Dixon*), 98.
Hutton, 236.
Lake (*Hotchkiss*), 346.
Wright, Broom & Bruce, 654.
Johnson (*Whipple & Whipple*), 675.
Gowans, 978.
Lake (*Date & Date*), 1068.
Gedge (*Radclet-Laurent & Son*), 1480.
Bousfield (*Heaton*), 1591.
Walton & Jones, 1607.
Blake, 2224.
Husband, 2315.
Church, 2469.
Procter, 2697.
Johnson (*Liogier*), 2944.
Glossop & Cooper, 3113.
Askham, 3526.
Haseltine (*Bradley*), 3910.

**Hammock-beds:**
Harper, 1144.
Picot, 3677.

**Hams (curing).** *See* "Preserving food."

**Handbarrows.** *See* "Barrows."

**Handrails:**
Lloyd, 1482.

**Hand warmers.** *See* "Muffs."

**Hanks for sails:**
Low, 530.

**Harbours; ports; quays:**
Page, 135.
Wigham, 1015.
Milroy, 1788.
Helbronner (*Durand*), 3785.

**Harness and saddlery:**
Fish & Wotherspoon, 7.
Lake (*Robbins*), 133.
Lake (*Morris*), 162.
Vicenso Count di Tergolina, 208.
Hinton, 532.
Littlejohns, 713.
Render, 1067.
Alekan & Alekan, 1141.
Cazes, 1252.
Darlow, 1334.
Lake (*Alexander*), 1425.
Muratori, 1588.
Bonneville (*Fabre*), 2077.
Webb, 2080.
Clay, 2507.
Wyke-Smith, 2590.
Clay, 2641.
De Negroni, 3748.

**Harrows.** *See* "Ploughing."

**Harvesters.** *See* "Reaping."

**Hat bands:**
Carlile, 71.
Drinkwater, 2625.

**Hatches for builders' hoists.** *See* "Builders' hoists."

**Hats, caps, bonnets; coverings for the head:**
De Montoison, 12.
Collinson, 68.
Carlile, 71.
Macintosh & Boggett, 137.
Lake (*Morris*), 162.
Floyd, 225.
Mollady, 234.
Myers, 273.
Gallagher, 551.
Carrington, 681.
Dalglieah, 684.
De Negri, Herrmann & Guest, 736.
Lawrence & Lawrence, 1053.
Clark (*Legat*), 1098.
Picken, 1772.
White (*Durst-Wild, frères*), 1793.
Downing, 1975.
De Montoison, 2001.
Turner, Hibbert & Cheetham, 2352.
Grimshaw, 2353.
Freutel, 2440.
Macintosh & Boggett, 2947.
Mann & Redihalgh, 3002.
Ritchie & Wyllie, 3009.
Towle (*Dodge & Messrs. Welch*), 3373.
Macintosh & Boggett, 3757.
Thompson, 3874.

**Hay (baling).** *See* "Presses."

**Hay (drying):**
Gibbs & Borwick, 314.
Norton, 3443.
Rydill, 3901.

**Hay, &c. (collecting and loading wagons):**
Lander, 2850.

**Haymaking.** *See* "Reaping."

**Headings and borderings for woven fabrics:**
Baynes, 998.
Clews, 1269.

**Healds:**
Yeadon, sen., 583.
Ayrton & Brown, 596.
Barlow, jun. (*Brown*), 781.
Kenyon, 1767.
Bretherick, 1792.
Harris & Holding, 1969.
Holdsworth, 2095.
Rippin & Rippin, 2775.
Rowe, 2969.
Farrau, 3527.

**Heaters, foot-warmers, &c.:**
Parker, 57.
Amies, 301.
Stone, 2580.

**Heating and evaporating; regulating heat:**
Lyttle, 31.
Gilbee (*Argall*), 41.
Johnson (*Sellers & Sellers*), 50.
Fothergill, 63.
Montgomerie, 79.
Healey, 85.
Kent, 90.
Macintosh & Boggett, 137.
Whitwell, 171.
Lake (*Muller & Eichelbrenner*), 200.
Bonneville (*Gapiand*), 245.
Friedmann, 254.
Newton (*Morgan*), 266.
Johnson, 293.
Williams, 303.
Newton (*Harris*), 306.
McDougall, 311.
Gibbs & Borwick, 314.
Fletcher, jun. (*Brocklehurst*), 324.
Jarman & Mitchell, 338.
Johnson (*Caldwell*), 349.
Calvert & Taylor, 350.
Burgess, 358.
Seyd, 368.
Hulse & McKay, 381.
Sutherland, 385.
Billing, 391.
Henman, 396.
Johnson (*Busby*), 419.
Johnson (*Ponsard Metallurgical Society*), 424.
Johnson (*Ponsard Metallurgical Society*), 426.
Gedge (*Welter*), 433.
Edwards & Robinson, 475.
Hargreaves & Robinson, 506.
Anderson, 513.
Rice, 520.
Johnson (*Reckendorfer*), 578.
Porter & Lane, 588.
Ellis, 611.
Hamer, 630.
Wallace, 634.
Wright, Broom & Bruce, 654.
Johnson (*Whipple & Whipple*), 657.
Lake (*Morrell*), 680.
Harrison & Harrison, 735.
Gray, 744.
Rose, 751.
Bradford, 763.
Smith (*Martin*), 768.
Robertson, 790.
Benson (*Hayes*), 802.
Gibon, Dusart & Bardy, 812.
Monteith (*Urquhart*), 837.
Lake (*Bailey, Goodrich & Locke*), 857.
Cowper, 887.
Lake (*Lamm*), 903.
Howard & Bousfield, 905.
Henderson (*Chapusot*), 926.
Caratti & Church, 954.
Lake (*Chase & Platt*), 961.
Rigod, 983.
Lafrogne, 994.
Johnson (*Ponsard Metallurgical Society*), 1018.
Wimpenny, 1023.
Webster, 1027.
Lawrence & Lawrence, 1033.

**Heating, &c.—*cont.***

Mills, 1038.
Mills, 1039.
Wilson, jun., 1093.
Clark (*Legat*), 1098.
Danks, 1111.
Jensen (*Bricheen & Maardt*), 1122.
Lake (*Caumon (Absterdam)*), 1135.
Broel, 1156.
Briggs & Ramsay, 1184.
Thomas, 1212.
Lyttle, 1264.
Cowper, 1265.
Smith, 1267.
Morgan-Brown (*Goulding*), 1270.
Bending, 1299.
Johnson (*Wilson*), 1302.
Stephens, 1342.
Hodge & Hodge, 1344.
Johnson (*Wells*), 1382.
Mills (*Demeure*), 1384.
Johnson (*Ponsard Metallurgical Society*), 1409.
Jensen (*Bricheen & Maardt*), 1423.
Sutherland, 1432.
Sheffield, 1435.
Monckton, 1460.
Fearnley, 1461.
Fryer, 1477.
Porter & Porter, 1494.
Berry, 1497.
Lake (*Rogers & Burchfield*), 1574.
Begg, 1580.
Johnson, 1583.
Imray (*Blair*), 1589.
Hughes (*Bicheroux*), 1598.
Cheesbrough (*Force & Judson*), 1600.
Doubelt (*Levoff*), 1649.
Lake (*Hamilton*), 1655.
Newton (*Dod*), 1658.
Harrison & Harrison, 1679.
Mc Kenzie, 1681.
Hinchcliff, 1705.
Harrison & Harrison, 1708.
Charpentier, 1720.
Holt, 1725.
Hengst & Muschamp, 1752.
McFarlane, 1779.
Johnson (*Lemaire & Sonnois*), 1791.
Imray (*Blair*), 1795.
Johnson (*Sellers*), 1799.
Haseltine (*Middleton*), 1801.
Bull, 1845.
Lake (*Hiler*), 1847.
Abate, 1853.
Davis, 1869.
Smith & Willans, 1876.
Burge, jun., 1877.
Wrigley, 1882.
Townsend, 1914.
Cheesbrough (*Fisher*), 1948.
Phillips, 1956.
Crosland, 1962.
Russ, 1964.
Robertson (*Robertson*), 1982.
Wallace, 1999.
Parlour, 2014.
Gorman, 2017.
Stewart & Defty, 2020.
Todd, 2035.
Caillot, 2036.
Vaughan (*Pernot*), 2046.
Abel (*Marous*), 2058.
Downes, 2066.
Cook & Lafone, 2069.
Adams, 2076.
Owen & Underwood, 2109.
Tongue (*Hogel & Bigelow*), 2115.
Heath, Evens & Heath, jun., 2123.
Johnson, 2126.
Ashwell, 2134.
Alloway, 2138.
Cheesbrough (*Clough*), 2156.
Smeaton, 2159.
Knott (*Speakman*), 2171.
Defty, 2191.
Dufrené (*Faure & Kessler*), 2205.
Allen & Fitzgerald, 2208.
Rose, 2223.
Mortlock, 2247.
Woore & Watt, 2257.
Housfield (*Wilson*), 2263.
Milburn & Jackson, 2266.
Hutton, 2275.

**Heating, &c.—*cont.***

Haseltine (*Alexander*), 2282.
Young, 2293.
Haseltine (*Fogarty*), 2296.
Thomas, 2314.
Löbnitz, 2319.
Motard, 2336.
Silver, 2350.
Moore, 2351.
Warren, 2358.
Mill, 2367.
Lake (*Weed*), 2369.
Harrison, 2371.
Sutcliffe, 2386.
Williams, 2395.
Blyth & Southby, 2417.
Routledge, 2431.
Haseltine (*Banta*), 2440.
Lake (*Harding*), 2443.
Emmens, 2453.
Ferrie, 2454.
Truswell & Holden, 2477.
Johnson (*Ponsard Metallurgical Society*), 2480.
Frickinger, 2527.
Stone, 2543.
Morfit, 2545.
Bryce, 2548.
Bird, 2558.
Thomas, 2575.
Onffroy (*Onffroy & Co.*), 2578.
Robertson, 2586.
Hargreaves & Robinson, 2596.
Gerland (*Messrs. Albert*), 2614.
Clarke, 2629.
Torr & Johnstone, 2642.
Harvey, 2644.
Lockhart, 2659.
Turton, 2678.
Standen, 2687.
Ruck, 2711.
Taylor, 2777.
Newton (*Leavitt*), 2784.
Bayliss, 2789.
Young & Brash, 2823.
Martin & Harper, 2828.
Harrison & Harrison, 2847.
Boyle, 2875.
Boyle, 2876.
Abel (*Orlowski*), 2883.
Chapman, 2887.
Hughes (*Schultze*), 2889.
Haseldine, 2912.
Nicholson & Skinner, 2931.
Carwood, 2935.
Aitken, 2948.
Cochrane, 2955.
Brakell, 2956.
Larkin, Leighton & White, 2964.
Tanner, 2974.
Ungerer, 2985.
Young, 2988.
Lake (*Weston*), 3004.
Ferrie, 3008.
Preston, 3010.
Legge, 3039.
Kayser, 3048.
Tugby, 3049.
Hargreaves & Robinson, 3052.
Shedlock, 3057.
Dann (*Alleau*), 3064.
Ashwell, 3073.
Bullough, 3085.
Contarini, 3092.
Walker, 3093.
Boyes, 3099.
Anderson, 3110.
Pohl, 3116.
Milner, 3117.
Fell, 3118.
Robertson, 3134.
Oddy, 3136.
Cook, 3147.
Meunier, 3164.
Partington & Riley, 3165.
Vaughan (*Dubois*), 3192.
Macfarlane, 3193.
Lake (*Schmitt*), 3228.
Harper, 3233.
Bolton, 3240.
Forbes, 3250.
Withy & Gibson, 3252.
Blackburn, 3253.
Parks, 3260.
Prince (*Hicks*), 3268.

**Heating, &c.—*cont.***

Lee, 3277.
Belleville, 3284.
Grether, 3290.
Ruston, 3304.
Smith, 3313.
Bonneville (*Aveil*), 3317.
Lees & Garforth, 3324.
Prince (*Fischer*), 3331.
Hanson, 3346.
Scott, 3355.
Manning, 3356.
De Michele, 3371.
Clark (*Gold*), 3397.
Mewburn (*Farinaux*), 3404.
Norton, 3443.
Davison, 3449.
Morgan, 3460.
Harrison & Harrison, 3473.
Ensor, jun., 3504.
Ramsden, 3520.
Harrison, 3523.
Jones, 3530.
Bodmer & Bodmer, 3557.
Ensor, jun., 3570.
Newton (*Dod*), 3588.
Garrood, 3603.
Knott, 3622.
Bacon, 3635.
Siemens, 3642.
Taylor, 3655.
Smith, 3667.
Ivory, 3682.
Lyte (*Storck, Hentsch, Hentsch, Lutscher, Grininger & Decottignie*), 3685.
Newton (*Woodbridge*), 3702.
Toller & Smyth, 3711.
Gedge (*Gaudefroy, fils*), 3712.
Sinclair, 3716.
Smith, 3717.
Servante, jun., 3720.
Hilles, 3739.
Key, 3744.
Cazson (*Dormoy*), 3763.
Bullough, 3770.
Simon & Simon (*Sommerfeld*), 3863.
Holt, 3869.
Fereday, 3882.
Rydill, 3901.
Smith, 3915.
Miller, 3926.
Rydill, 3968.
Williamson & Dale, 3969.
Camrour, 3950.
Mackinnon, 3951.
Housfield (*Scowden*), 3968.

**Heating or warming beds and couches:**

Macintosh & Boggett, 137.
Henley, 3772.

**Heating or warming buildings:**

Parker, 57.
Brown, 105.
Lee, 128.
Rendle, 569.
Southby, 646.
Lake (*Morrell*), 680.
Harrison & Harrison, 785.
Dearda, 761.
Mills, 1038.
Edwards (*Blessing, Townsend & Jackson*), 1139.
Shorland, 1169.
Eagles (*Bergehausen, Philippe & Kiesling*), 1263.
Carter, 1359.
Jensen (*Bricheen & Maardt*), 1423.
Fearnley, 1461.
Berry, 1497.
Berry, 1498.
Messenger, 1545.
Hartley & Sugden, 1698.
Housman, 1863.
Hartley & Sugden, 1910.
Blackham, 2461.
Truswell & Holden, 2477.
Stone, 2543.
Robertson, 2586.
Lockhart, 2659.
Turton, 2678.
Lake (*Briggs*), 2741.

**Heating buildings**—*cont.*
Gibbs, 2742.
Boyle, 2875.
Whittle, 2901.
Aitken, 2948.
Sims & Holmes, 3042.
Oddy, 3136.
Verrier, 3375.
Clark (*Gold*), 3397.
Blyth, 3423.
Tall, 3444.
Harrison, 3472.
Longden, 3540.
Rydill, 3601.

**Heating or warming carriages:**
Lake (*Morrell*), 680.
Feldtmann (*De Derschau*), 830.
Eagles (*Bergshausen, Philipps & Kiesling*), 1263.
Weibel, 1462.
Charpentier, 1720.
Kienast, 2721.
Lake (*Briggs*), 2741.
Mann, 2998.
Oddy, 3136.
Kiesling, 3302.
Baker, 3807.

**Heckling fibrous materials.** *See* "Spinning (carding)."

**Hides and skins.** *See* "Leather."

**Hinges.** *See* "Joining."

**Hoes.** *See* "Tools."

**Hoes (horse).** *See* "Ploughing."

**Hoists; raising, hauling and lowering heavy bodies:**
Mills (*Cathcart, Eschiel & Fuchts*), 61.
Pieper, 67.
Clark, 70.
Lake (*Silver*), 218.
Ennor, 271.
Saunders, 278.
Harfield, 463.
Newton (*Osgood, Storer & Keys*), 576.
Newton (*Andrews*), 676.
Budenberg (*Schäffer & Budenberg*), 860.
Clark (*Patrick*), 902.
Rippin, 941.
Gedge (*Coulouvrat*), 952.
Reeves, 1010.
Brewer (*Frye*), 1011.
Wilson, 1174.
Soame, 1277.
Lake (*Alexander*), 1465.
Holman, 1531.
Rowat, 1578.
Duer, 1615.
Weston, 1776.
Kirk, 1962.
Holmes, Messrs., 1993.
Furness, 2009.
Ward, 2040.
Warnes & Mitchell, 2160.
Simpson & Hurd, 2166.
Eddison (*Tulbam & Brittin*), 2174.
Warneck, 2177.
Lake (*Silver*), 2185.
Lake (*Harris*), 2188.
Walker, 2206.
Wrightson, 2333.
Scott, 2376.
Weston, 2494.
Harfield, 2512.
Plessner, 2525.
Hayes, 2564.
Newton (*Farcot, Messrs., & Chateau*), 2635.
Story & Lynde, 2791.
Clark (*Lindenblith*), 2909.
Lewin, 2940.
Davies, 3012.
Walker & Clarke, 3050.
Perkins, 3169.
Fisken, 3175.
Payton, 3187.

**Hoists, &c.**—*cont.*
Horton, 3296.
Lake (*Mekarski*), 3338.
Fulton, 3361.
Towle (*Dodge & Messrs. Welch*), 3373.
Holman, 3423.
Young, 3506.
Howard & Bousfield, 3516.
Stevens, 3547.
Eades & Eades, 3596.
Lloyd, 3638.
Johnson, Ellington & Harrison, 3650.
Clayton, 3660.
Maynard, 3674.
Gedge (*De Kercado*), 3766.
Ellington & Harrison, 3812.
Brown, 3816.
Rendel, 3826.
Defty, 3842.
Shaw, 3868.
Hope, 3885.
Kirk, 3911.

**Holeing coal.** *See* "Mining."

**Holes in metals (cleaning out).** *See* "Metals (cleaning)."

**Hooks; hooking:**
Mills (*Cathcart, Eschiel & Fuchts*), 61.
Lake (*Bradford*), 856.
Prince, 1259.
Clark (*Stancliff & Floyd*), 1747.
Brewer (*Le Blanc & Vincent*), 2025.
Wadsworth, 2927.
Newman & Bartholomew, 3329.

**Hooks and eyes:**
Turney, 1838.

**Hoops; bale ties:**
Bleckly, 847.
Ashcroft, 1466.
Walker, 1653.
Newton (*Beard*), 1706.
Davis, 1869.
Lake (*Aiken & Sweet*), 2099.
Lake (*Laughland*), 2734.
McComb (*Cook*), 2948.
Horton, 3236.
West & West, 3402.
Brown, 3500.

**Hop-bine.** *See* "Plants."

**Hops; spent hops:**
Gibbs & Borwick, 314.
Curtis, 327.
Lake (*Clarke*), 329.
Page, 3350.
Houghton, 3853.

**Horn.** *See* "Bones."

**Horse-cloths.** *See* "Harness."

**Horse-shoes; shoeing horses:**
Ellis, 280.
Johnson (*Nee*), 323.
McEntee, 518.
Clark (*Wills & Kingsland*), 669.
Johnson (*Whipple & Whipple*), 657.
Clark (*Quinn*), 701.
Lebacq, 846.
Prince & Blakemore, 928.
Morgan-Brown (*Fuller*), 960.
Lewis, 1247.
Marchant & Angell, 1356.
Ellis, 1815.
Morgan-Brown (*Fuller*), 1977.
Guèrin, 2070.
Morgan-Brown (*Fuller*), 2462.
Hill, 2568.
Lebacq, 2796.
Huggett & Huggett, 3037.
Marchant, 3263.
Ré (*Vezzoli*), 3405.
Lake (*Alden*), 3691.
Robertson, 3837.

**Horticulture; horticultural buildings; forcing houses:**
Knowles, 294.
Lloyd, 332.
Thorpe, 342.
Lake (*Passmore*), 536.
Rendle, 569.
Sunley, 642.
Simpson, 754.
Dearda, 761.
Lanteigne, 848.
Fox & Wilde, 915.
Darlow, 1334.
Carter, 1359.
Looker, 1397.
Berry, 1407.
Henderson, 1513.
Messenger, 1545.
Housman, 1863.
Phillips, 1906.
Hartley & Sugden, 1910.
Walton, 1972.
Sutcliffe, 2112.
Field, 2523.
Stone, 2543.
Turton, 2678.
Newton (*Barlow & Walker*), 2701.
Camroux, 2706.
Boyle, 2875.
Whittle, 2901.
Sims & Holmes, 3042.
Glazier, 3278.
Lloyd, 3638.
Ayres, 3787.

**Hose (hydraulic).** *See* "Pipes."

**Hosiery.** *See* "Stockings."

**Hour-glasses for operating ventilators:**
Lake (*Chèradame, Le Dreux & Ourset*), 2053.

**Hulling corn, grain and seeds.** *See* "Thrashing."

**Hurdles.** *See* "Fences."

**Hydrants:**
Lake (*Allen*), 163.
Millward (*Fricker, jun.*), 1945.
Hawley, 2264.

**Hydraulic cement.** *See* "Cement."

**Hydraulic foundations:**
Helbronner (*Durand*), 3309.

**Hydraulic motive-power.** *See* "Waterwheels."

**Hydraulic rams:**
Wright, 186.
Fletcher, 549.
Church, 563.
Wright, 1017.
Fenby, 1276.
Sacré, 1805.
Kochs, 1865.
Heath, Evens & Heath, jun., 2153.
Wrightson, 2333.
Church, 2469.
Hooper, 2749.
Holman, 3423.
Ketrby, 3559.
Cornish, 3661.
Ellington & Harrison, 3812.
Urquhart & Lindsay, 3924.

**Hydrocarbons.** *See* "Oils of tar."

**Hydrogen gas.** *See* "Gas making."

**Hydrometers:**
Lake (*John*), 1232.
Nicholls, 3137.

**Hydro-oxygen gas-burners.** *See* "Gas-burners."

**Hydrostatic instruments:**
Nicholls, 3137.

## I.


**Ice.** *See* "Refrigerating."

**Ice breakers for barges or boats on still water:**
Kay, 1994.

**Incrustation and sediment (preventing).** *See* "Oxidation."

**Incubators:**
Salmon, 214.
Stone, 2543.
Boyle, 2875.
Boyle, 2876.

**Indexing letters, papers, &c.:**
Keyworth, 1097.
Morgan-Brown (*Amberg*), 3220.

**Indexing or registering the condition of metal ships, boilers, tanks, masts, &c.:**
Taylor, 240.

**India-rubber (treatment and application):**
Hyatt, 40.
Gilmore, 58.
Ronald & Farmer, 89.
Macintosh & Boggett, 137.
Walton, 176.
Seymour, 288.
Jaques & Banks, 305.
Oldroyd, 364.
Woods, 430.
Williamson & Williamson, 497.
McIntee, 518.
Heshuysen, 519.
Westinghouse, jun., 595.
Wright, Broom & Bruce, 654.
Clark (*Quinn*), 701.
White (*Griffin & Maquin*), 708.
James, 778.
Thomas, 793.
Temple & Danter (*Osborn*), 816.
Mc Evoy, 832.
Ekman, 834.
Lanteigne, 848.
Neill, 906.
Johnson (*Tingley*), 914.
Allex & Gardner, 916.
Holmes, 923.
Manent, 963.
Prudencio & Cotterell, 975.
Wimpenny, 1023.
Gedge (*Saint-Aubin*), 1047.
Clark (*Legat*), 1098.
Taber (*Carrao*), 1133.
Hacking & Hacking, 1142.
Aston, 1183.
Benson (*Lewis & Way*), 1258.
Myerns, 1286.
Smith, 1314.
Darlow, 1334.
Marchant & Angell, 1356.
Wise (*Huebecher*), 1374.
Wilbaux, 1406.
Ross, 1414.
Johnson (*Fitts*), 1417.
Kern, 1450.
Jensen (*Steinbrenner*), 1474.
Henderson, 1518.
Michaelis (*Becker*), 1567.
Harris, 1609.
Moseley, 1637.
Darlow, 1665.
Johnson (*Ely*), 1693.
Hodgson, 1719.
Mercier, 1733.
Ballardie, 1774.
McFarlane, 1779.
Rolls, 1786.
Taylor, 1809.
Telford, 1810.

**India-rubber, &c.—*cont.***
Lambert & White, 1836.
Baker, 1996.
Donovan, 2055.
Adams, 2076.
Mc Evoy, 2085.
Hill, 2097.
Brooks, 2146.
Ayckbourn, 2175.
Conron, 2180.
Clark (*Dubois*), 2219.
Pullar, 2242.
Mattson, 2251.
Banner, 2303.
Hornsby, Phillips & Innocent, 2364.
Barton, 2393.
Daft, 2411.
Haseltine (*Sanderson*), 2435.
Dodge, 2459.
Haseltine (*Sanderson*), 2492.
Morfit, 2545.
Macintosh & Boggett, 2554.
Newton (*Hoe*), 2561.
Mudford, 2582.
Reynolds, 2598.
Hughes (*Wilbaux*), 2883.
Harris, 2867.
Abel (*Orlowski*), 2883.
Gedge (*Cornély*), 2922.
Atkin, 3031.
Dodge (*Dodge*), 3059.
Trémaux, 3068.
Hird & Ensor, 3071.
Robison, 3083.
Aldridge, 3157.
Johnson (*Magnier, Pouilly, Brunet et Cie. & Prevost*), 3196.
Reynolds, 3264.
Parnacott, 3292.
Tebbutt, 3315.
Lake (*Mokarski*), 3338.
Zimdars, 3340.
Alley, 3342.
Barr, 3343.
Clark (*Lavater*), 3414.
Turner, 3418.
Hughes (*Winslow*), 3424.
Norton, 3443.
Meiter, Smith & Minasi, 3457.
Keirby, 3558.
Quadling & May, 3559.
Ogilvie (*Ogilvie*), 3595.
Murdoch (*Roche*), 3647.
Viles, 3663.
Spencer & Scott, 3694.
Lake (*Woodbury*), 3778.
Crossley & Crossley, 3878.
Kriéger & Cauderlier, 3887.
Quin, 3962.
Quin, 3983.
Venman & Warne, 3944.
Patrick, 3946.

**Indicating amount of opening of valves and cocks:**
Rigollot, 3063.
Johnson (*Mignon & Rouart*), 3422.

**Indicating and counting number of times a pipe is opened for the withdrawal of liquids from casks, &c.:**
Bañolas-Arnau, 196.

**Indicating boiler pressure.** *See* "Gauges."

**Indicating clearing of pillar letter-boxes:**
Anderson, 1483.

**Indicating colour displayed in signal lamps or lanterns:**
Quick, Messrs., & Cooper, 593.

**Indicating contents of casks:**
Trimmer, 912.
Northcote, jun., 1702.

**Indicating distance of objects:**
Lake (*Biggs*), 1019.

**Indicating height of bilge water in ships:**
Strauss (*Harris*), 745.

**Indicating high pressures:**
Wilson, 1174.

**Indicating inequalities of pressure in water columns of pumps:**
André, 2312.

**Indicating name of stations.** *See* "Sign boards."

**Indicating number of discharges from weighing vessels:**
Ayre, 177.

**Indicating number of persons entering or leaving vehicles or public places:**
Warbrick & Clegg, 999.
Liddington, 1094.
Starr, 2079.
Wier, 2145.
Ashlin & Clover, 2245.
Davey, 2462.
Robinson, 2663.
Walker 2723.
Wappenstein, 2810.
Whitehouse & Phillips, 3016.
Griffiths & Busby, 3089.
Bezer & Millar, 3114.
Grantham, 3333.
Bezer, 3565.
Bainbridge, 3817.

**Indicating or checking the receipt and delivery of goods:**
Durham & Hupton, 1238.
Tabor, 1888.
Robinson, 2663.
Bainbridge, 3817.

**Indicating or counting quantity of yarn wound:**
Conlong & Smith, 1717.
Fletcher & Fletcher, 2397.
Middleton, 3671.
Newall, 3753.

**Indicating speed and motion of carriages and ships:**
Hunt (*Schols*), 1004.
Conlong & Smith, 1717.
Whitehouse & Phillips, 3016.
Griffiths & Busby, 3089.
Bezer & Millar, 3114.
Bezer, 3565.

**Indicating speed of engines.** *See* "Governors."

**Indicating strain.** *See* "Testing."

**Indicating value of coins dropped in tills:**
Hookham, 1968.

**Indicating value of tickets issued:**
Longman & Alderman, 1402.

**Indicating variations of heat in ships, rooms, &c.** *See* "Thermometers."

**Indicating weight.** *See* "Weighing."

**Indicating when carriages are due at various stations on the route:**
Anderson, 1483.
Whitehouse & Phillips, 3016.

**Indicators for offices (personal):**
Steel, 3407.

**Indicators or glass gauges for shewing the state of the interior of axle boxes:**
North (*Tomlinson*), 3541.

**Indigo.** *See* "Dyes."

**Indurating tiles.** *See* "Bricks."

**Infusions and decoctions:**
Curtis, 327.
Bonneville (*Beckman-Olafson*), 376.
Grinlinton (*Dawson*), 724.
Doyen, 1743.
Huch, 2535.
Ross (*Dawson*), 2667.

**Inhaling.** *See* "Medical treatment of man."

**Injectors and irrigators (hygienic):**
Kay & Kay, 1173.
Bonneville (*Gache*), 1290.
Arnold, 1404.
Mattson, 2251.

**Injectors for steam-boilers:**
Wright, Broom & Bruce, 654.
Robertson, 1675.
Davis, 2214.
Friedmann, 2271.
Hallam, 3539.
Bailey & Grindrod, 3808.

**Inks; inking; ink pads and trays:**
Newton (*Hoe*), 45.
Edwards, 73.
Lake (*Campbell*), 169.
Rault & Chassan, 304.
Bayly, 319.
McDonald, 352.
Wheatstone & Stroh, 473.
Newton (*Hoe*), 545.
Schanschieff (*Haüy Marquis de Forville*), 769.
Lake (*Field & Andrews*), 828.
Wolstenholme, 951.
Little, 1207.
Coddington (*Gally*), 1319.
Ricketts, 1556.
Eckhold, 1612.
Cope & Barrett, 1659.
Cropper (*Hopson & Allen*), 1787.
Redmayne, 1894.
De Zuccato, 1963.
Hodges, 1965.
De Lara & De Salomos, 2167.
Mac Donnell, 2256.
Carwood, 2511.
Whitehouse & Phillips, 3016.
Johnson & Shanks, 3074.
Ford, 3131.
Parker, 3217.
Davis & Pardoe, 3248.
Lake (*Rondel*), 3458.
Clark (*Aubertin & Hannart*), 3441.
Siecinoski, 3451.
Cunningham, 3632.
Servante, jun., 3720.
Venman & Warne, 3944.

**Inlaid work:**
Bousfield (*Lewis*), 3415.

**Insects (destroying and keeping away):**
Brandon (*De Gonzalo & Griesi*), 32.
Gahn, 1240.
Christy, jun. (*Bobrowicki*), 1327.
Phillipson, 1855.
Walton, 1972.
Mills (*Dorlan*), 2029.
Clark (*Bailey*), 2064.
Hudson, Walker & Robson, 2348.

**Insulators; insulating wire:**
Lake (*Radde*), 121.
Pigott, 286.
Truman, 462.
Mc Evoy, 832.
Greene, 1056.
Little, 1207.
Highton, 1279.

**Insulating, &c.**—*cont.*
Lyttle, 1320.
Siemens, 1473.
Gilbert, 1753.
Rolls, 1786.
Jobson, 1961.
Mc Evoy, 2085.
Fairholme, 2260.
Highton, 2547.
Cunningham & Cunningham, 2702.
Henry (*Rogers*), 2987.
Lyttle, 3206.
Lake (*Simmons*), 3736.
Harling, 3779.

**Intaglio cutting.** *See* "Engraving."

**Invalid furniture; stretchers:**
Taylor, 394.
Lock, 805.
Decamps, 844.
Reed, 1066.
Hern, 1450.
Stidolph, 2588.
De Froideville, 3190.
North, 3907.

**Iodine:**
Sonstadt, 1054.
Stanford, 2118.

**Iron cleaning.** *See* "Metals (cleaning)."

**Iron filings, turnings, &c. (utilizing to obtain iron):**
Thornton, 2499.

**Ironing; smoothing irons:**
Bradford, 763.
Wimpenny, 1023.
Simcox & Banks, 1324.
Davey, 1610.
Mortlock, 2347.
Aitken, 2946.
Clark, 3000.
Smith, 3313.

**Irrigating.** *See* "Watering."

**Ivory.** *See* "Bones."

## J.

**Jacks.** *See* "Hoists."

**Jacquard machines.** *See* "Weaving."

**Japanning:**
Edwards, 3166.
Magnus, 3831.

**Jars and stoppers; pots:**
Stocker, 154.
Franklin (*Pyne & Maurice*), 332.
Webb, 1225.
Woolley & Woolley, 1283.
Brown, 1704.

**Jelly fat:**
Morfit, 140.

**Jetties.** *See* "Piers."

**Jewellery; jewel cases; jeweller's lathes:**
Nourick & Wild, 22.
Clark (*Edge*), 414.
Holmes, 923.
Lüttringhaus, 1075.
Darlow, 1334.
Ricketts, 1556.
Bidder, Lamb & Scrivener, 2149.
West, 2722.
Brewer (*Scgaffin*), 2900.

**Jewellery, &c.**—*cont.*
Gardner, 2953.
Goss, 3129.
Toft, 3294.
Swain, 3625.
Welton, 3823.
Rozsavölgyi (*Muiron*), 3876.

**Joining, coupling, joints and hinges:**
Fish, 6.
Spence, 56.
Lyttle, 109.
Beven, 119.
Lake (*Radde*), 121.
Spence (*Oakley*), 138.
Dee, 158.
Hulse, 195.
Rowan, 284.
Allibon & Manbré, 318.
Jones, 343.
Sutherland, 385.
Harris & Normington, 397.
Hodgson, 418.
Lake (*McLeod*), 443.
Smith (*Michaels & Broadwell*) 477.
Bayley, 496.
Taylor & Larkin, 533.
Lenny, 565.
Newton (*Osgood, Storer & Kaye*), 576.
Westinghouse, jun., 595.
Wright, Broom & Bruce, 654.
Tannett, Scott, jun., Craven & Fox 660.
Elmslie, 704.
Andrews, 705.
Wier, 711.
Somerville, 776.
Desbordes, 810.
Temple & Danter (*Osborn*), 814.
Mc Evoy, 832.
Lyttle, 867.
Adlam, 872.
Lewis, 876.
Clark (*Floyd, Dieterich & Schimler*), 901.
Howard & Bousfield, 905.
Moorhouse & Kendall, 916.
Mathews, 920.
Smith, 921.
Richards, 922.
Brewer (*Frye*), 1011.
Wimpenny, 1023.
White, 1164.
Newton (*Hoe*), 1169.
Ironside, 1125.
Norton, 1149.
Cazes, 1252.
Johnson (*Inglis*), 1266.
Myerns, 1286.
Edwards, 1287.
Bonneville (*Gache*), 1290.
Fish (*Mallory*), 1363.
Lake (*John*), 1332.
James, 1337.
Kocha, 1339.
Clark (*Massey*), 1351.
Slaughter & Sacré, 1364.
Fison, 1368.
Perkins, 1389.
Ley & Pinker, 1401.
Larmuth & Norton, 1412.
Swain, 1413.
Lake (*Alexander*), 1425.
Morris, 1457.
Siemens, 1473.
Fryer, 1477.
Ashcroft, 1486.
Lake (*Curtis*), 1499.
Messenger, 1545.
Lake (*Horack*), 1576.
Rowat, 1578.
Bousfield (*Heaton*), 1591.
Lake (*Campbell & Saunders*), 1624.
Newton (*Dod*), 1658.
Hack, 1663.
Westinghouse, jun., 1691.
Newton (*Beard*), 1706.
Hough, 1712.
Holt, 1725.
Smith, 1750.
Gilbert, 1753.
White, 1765.

**Joining, &c.—*cont.***
Mc Farlane, 1779.
Garey, 1812.
Johnson (*Albaret*), 1836.
Dawes, 1857.
Newton (*Thompson*), 1864.
Palmer, 1897.
Millward (*Fricker, jun.*), 1945.
Lake (*Glassie, Nash & Armes*), 1957.
Lowry, 1966.
Rabone (*Kenyon*), 1989.
Adams, 2076.
Mc Evoy, 2085.
Lake (*Aiken & Swett*), 2099.
Nicholson, 2104.
Pullen, sen., & Pullen, jun., 2163.
Cox & Cox, 2204.
Renshaw, 2231.
Edwards, 2259.
Fairholme, 2260.
Flood, 2269.
Fielding, 2301.
Thomas, 2313.
Clark, 2355.
Hornsby, Phillips & Innocent, 2364.
Barton, 2393.
Hadfield, 2396.
Chapin, 2415.
Dodge, 2459.
Rostron, 2490.
Morris, 2504.
Morfit, 2545.
Foster, 2551.
Smith (*Copeland*), 2565.
Martin, 2597.
Edwards, 2599.
Leslie, 2606.
Torr & Johnstone, 2642.
Fish, 2671.
Ford, 2673.
Johnson (*Clarke, Bonsano & Griffen*), 2701.
Stableford, 2732.
Dale, 2812.
Burnie, 2853.
Swain, 2874.
Hughes (*Krochmann*), 2895.
Chapin, 2973.
Fisher, 2976.
Moss, 2992.
Chancellor, 3015.
Johnson (*Rand & Waring*), 3125.
Brown (*Colladon*), 3126.
Oddy, 3136.
Aldridge, 3157.
Edwards, 3166.
Rowe, 3173.
Barrow, 3199.
Harper, 3233.
Longridge, 3259.
Marchant, 3263.
King, 3275.
Roberts, 3280.
Newman & Bartholomew, 3329.
Lake (*Makarski*), 3338.
Zimdars, 3340.
Barr, 3348.
Brimelow & Sutherst, 3357.
Johnson (*Ward*), 3386.
Harrold, 3400.
Newton (*Thompson*), 3411.
Kay, 3430.
Morgan, Macaulay & Waide, 3439.
Norton, 3443.
Brookes (*Farjon*), 3490.
Morton, 3496.
Brydon, Davidson & Warrington, 3507.
Owen, 3512.
Quadling & May, 3559.
Newton (*Dod*), 3588.
Ashton, 3607.
Clark (*Staughton*), 3630.
Peile, 3633.
Murdoch (*Roche*), 3647.
Donaldson, 3681.
Lake (*Kibbe*), 3689.
Newton (*Woodbridge*), 3702.
Gedge (*Gaudefroy, fils*), 3712.
Davis, 3751.
Taunton, 3850.
Kesterton, 3870.
Rózsavölgyi (*Muiron*), 3876.
Haseltine (*Bradley*), 3910.
Williamson & Dale, 3939.

**Jugs and pitchers:**
Gilmore, 58.
Fox, 201.
Toft, 619.
Fox, 1427.

**Juices (treating vegetable):**
Gill, 2261.

## K.

**Kaleidoscopes:**
Lake (*Woodbury*), 3365.

**Kamptulicon.** *See* "Floor-cloth."

**Kettles:**
Cox, 2583.
Camroux, 3950.

**Keys.** *See* "Locks."

**Kilns:**
Newton (*Morgan*), 266.
Johnson (*Caldwell*), 340.
Musgrave & Musgrave, 505.
Pollock & Mitchell, 1200.
Jensen (*Erichsen & Maardt*), 1423.
Maynard, 1436.
Johnson, 1583.
Lake (*Hamilton*), 1655.
Smith & Willans, 1876.
Burge, jun., 1877.
Wrigley, 1882.
Townsend, 1914.
Gorman, 2017.
Harrison, 2371.
Lipscombe, 2450.
Emmens, 2453.
Truswell & Holden, 2477.
Winskill, 2495.
Young & Brash, 2823.
Tugby, 3049.
Ashwell, 3073.
Basford, 3285.
Bonneville (*Aeril*), 3317.
Ensor, jun., 3570.
Bacon, 3635.
Rydill, 3901.

**Knapsacks:**
Johnson (*Frasier*), 144.
Muratori, 1588.
Edmiston, 2758.

**Kneading.** *See* "Mixing."

**Knickerbockers.** *See* "Wearing-apparel."

**Knife cleaners:**
Elliott, 940.

**Knitted fabrics (metallic):**
Clark (*Edge*), 414.

**Knitting machines; uniting parts of looped fabrics:**
Beven, 119.
Smith (*Poron & Poron*), 204.
Clark (*Bickford*), 606.
Dalgliesh, 684.
Griswold, 693.
De Negri, Herrmann & Guest, 736.
Thornton, 1059.
Lake (*Ramsdell & Crane*), 1361.
Lewis & Ward, 1449.
Brewer (*Appleton*), 1546.
Griswold, 1489.
Towle (*Dodge & Messrs. Welch*), 3373.
Whitehall, 3855.
Scattergood, 3881.
Mellor, 3937.

**Knives, forks and steels:**
Andrew, 184.
Cunningham 544.
Brooks, 1571.
Bousfield (*Heaton*), 1591.
Woods & Clark, 1923.
Evans & Cochrane, 1996.
Bodmer, 2383.
Haseltine (*Shedd*), 2994.
Toussaint, 3096.
Dawson, jun., 3102.
Hornsby, Phillips & Innocent, 3289.
Jensen (*Brooks*), 3477.
Needham, 3538.
Topham, 3634.

## L.

**Labels.** *See* "Stamps."

**Lace-making:**
Booth, 188.
Malhère, 852.
Lindley, 1819.
Mackenzie, 2645.
Heaselden, 2694.

**Lacing-hooks.** *See* "Hooks."

**Ladders:**
Dubbin, 661.
Mitchell, 2005.
Dubbin, 2626.
Murray, 3384.

**Lamps; candlesticks; chandeliers; lamp furniture, glasses and shades:**
Keeling, 150.
Tomkys, 258.
Murdoch (*Maroni*), 275.
Phillips, 384.
Defries, 516.
Gregg, 528.
Quick, Messrs., & Cooper, 593.
Tandy & Dryden, 648.
Farquhar, 727.
Hopkinson, sen., & Hopkinson, jun., 859.
Reilly, 918.
Mathews, 920.
Rigod, 983.
Wigham, 1015.
Herrmann & Laurent, 1041.
Browne (*Hartley*), 1110.
Lake (*Myers*), 1202.
Doty & Gardner, 1233.
Gardner, 1249.
Whateley, 1250.
Ayres, 1281.
Plimsoll, 1400.
Blackwood, 1440.
Ridsdale, 1620.
Doria, 1625.
Slater, 1628.
Porteous & Bruce, 1645.
Newton (*Douillard*), 1729.
Palmer, 1760.
Calvert, 1870.
Burleigh, 1891.
Harvie, 1915.
Phillips, 1956.
Gorman, 2017.
Imray (*Denayrouze*), 2142.
Hopkinson, jun., 2170.
Cordier, 2202.
Linwood, 2203.
Henderson (*Lalouette*), 2253.
Silver, 2350.
Ridsdale, 2420.
Emmens, 2453.
Rippingille, 2604.
Fish, 2715.
Read & Nickoll, 2765.
Pickin, 2826.
Bernard, 2968.
Bagley, 2990.

**Lamps, &c.—*cont.***
Stocker, 3062.
Hoadley, 3081.
Goss, 3129.
Harper, 3233.
Blackburn, 3253.
Plimsoll, 3274.
Plimsoll, 3281.
Bousfield (*Lewis*), 3415.
Sykes & Francis, 3448.
Papier, 3521.
Tandy & Stroudley, 3540.
Bell & Bell, 3581.
Lloyd, 3638.
Benson (*Irwin*), 3695.
Shedlock & Shedlock, 3723.
Harvey, 3754.
Tuddenham, 3762.
Konn (*Ladiguine*), 3809.
Brown & Brown, 3896.
Camroux, 3950.
Mackinnon, 3951.

**Land (draining).** *See* "Drains."

**Languages (learning the pronunciation of).** *See* "Teaching."

**Lard; sampling lard:**
Baird, 1516.
Yule, 3124.

**Lasts:**
Lake (*Mills & Taylor*), 500.
Johnson (*Mills & Taylor*), 1470.
Southall, 2918.

**Lathes.** *See* "Turning."

**Lavatories, wash-stands and appliances:**
Gowans, 87.
Lake (*Daniels*), 1500.
Cawse, 2423.
Davies, 2538.
Morgan, Macaulay & Waide, 2489.
Holcroft, 3456.
Shanks, 3796.

**Lawn-mowers.** *See* "Horticulture."

**Leakages in pipes (detecting):**
Lake (*Myers*), 316.

**Leaks (stopping):**
Wood, 600.
Drevet, 689.
Smith (*Copeland*), 2565.
Drevet, 2638.

**Lears for annealing glass.** *See* "Glass."

**Leather, skins and hides; imitation leather:**
Tullis, 8.
De Montoison, 12.
De Montoison, 13.
Lake (*Morris*), 162.
Cockill, Shaw, Keir & Craven, 165.
Jenkinson & Dickson, 175.
Macdiarmid, 192.
Birdsall, 382.
Hunt (*Simonds*), 529.
Hunt (*White*), 572.
Vanel, 606.
Lake (*Fitzhenry*), 764.
Lanteigne, 846.
Lake (*Guichard & Dupont*), 962.
Don & Wright, 970.
Denne & Heutschel, 1246.
Deregnaucourt, 1431.
Herveux, 1521.
Barlow (*Renard*), 1613.
Turner, 1654.
Hodgson, 1719.
Smith, 1750.
Crévissier & Lecamp, 1775.
Spence (*Pathier*), 1852.
Phillips, 1956.

**Leather, &c.—*cont.***
Downing, 1975.
White, 1978.
De Montoison, 2001.
De Montoison, 2002.
Newall & Barker, 2012.
Bateson, 2144.
Jenkins, 2148.
Morgan-Brown (*Dodge*) 2464.
Newton, 2539.
Michea, 2786.
Michea, 2787.
Wheelhouse, 2807.
Rowlandson, 2917.
Glazier, 3278.
Marie, 3355.
Newall & Barker, 3336.
Murdoch (*Picard*), 3350.
Grosvenor, 3447.
Turner, 3599.
Bolton, 3648.
Senior, 3889.
Harrington, 3959.

**Leather cloth:**
Thorpe, 2427.

**Leggings; gaiters:**
Parker-Rhodes, 309.
Anderson, 756.
Bousfield (*Heaton*), 2707.
Perron & Bonnardot, 2871.
Goodacre, 2978.
Morgan-Brown (*Schulte*), 3614.

**Lenses:**
Whateley, 1250.
Lenox, 1280.
Thomas, 1570.
Wenham, 1640.
Harvie, 1915.
Linwood 2203.
Bousfield (*Lewis*), 3415.

**Let-off motion in looms:**
Lake (*Day*), 10.
Rippin & Rippin, 2775.
Lyall, 3377.

**Letter cases.** *See* "Bill cases."

**Lettering name-bands.** *See* "Printing metals."

**Letter-paper and envelopes (combined).** *See* "Envelopes."

**Letters and numerals:**
Don & Wright, 970.

**Levels.** *See* "Plumbing."

**Lever apparatus for moving carriages and trucks on railways.** *See* "Railways."

**Life boats; life boat stations:**
Jones & Green, 1062.
Muratori, 1588.

**Life buoys and preservers; saving from drowning:**
Brandon (*De Gonzalo & Griset*), 82.
Racey & Young, 498.
Jones & Green, 1062.
Bedwell, 1517.
Bedwell, 1595.
Macintosh & Bogrett, 2554.
Macintosh & Bogrett, 2947.
De Froideville, 3190.
Jones, 3260.
Kennedy, 3867.

**Light (electric):**
Slater, 1628.
Henry (*Ehrmann*), 3692.
Konn (*Ladiguine*), 3809.

**Light printing.** *See* "Photography."

**Lighthouses; lightships; beacons:**
Farquhar, 727.
Wigham, 1015.
Hopkinson, jun., 2170.
Cordier, 2204.
Fisher, 2976.
Bousfield (*Lewis*), 3415.

**Lighting fires.** *See* "Fuel."

**Lighting gas.** *See* "Gas burners."

**Lightning protectors:**
Winter, 3701.

**Lime and its compounds:**
Rich, 547.
Perkins, 648.
Lockyer, 774.
Abel (*Ville*), 958.
Lake (*Lewis & Pratt*), 1267.
Monckton, 1460.
Christy, jun., & Bobrownicki, 1492.
Kenyon, Kenyon & Swindells, 1549.
Riddell, 1690.
Burge, jun., 1877.
Clark (*Pollock*), 1934.
Tongue (*Hogel & Bigelow*), 2115.
Dufrené (*Faure & Kessler*), 2265.
Clark (*Blanchard*), 2265.
Vaughan (*Striedter*), 2277.
Browne (*Storck, Hentsch, Hentsch, Letscher & Grininger*), 2296.
Packard, jun., 2328.
Morfit, 2341.
Morfit, 2344.
Morfit, 2357.
Gerland (*Messrs. Albert*), 2614.
Morfit, 2823.
Tanner, 2974.
Kiesling, 3302.
De Michele, 3371.
Scott & Scott, 3670.
Best, 3687.

**Lining furnaces.** *See* "Furnaces."

**Linings (tin) for packing cases:**
Shanks, 3316.

**Linoleum.** *See* "Floor-cloth."

**Liqueurs or cordials:**
Johnson (*Joannon*), 528.
Johnson (*Joannon*), 971.

**Loading cargo.** *See* "Ships' cargoes."

**Lobster crackers.** *See* "Nut crackers."

**Lockets:**
Swain, 3625.

**Locks, latches and lock furniture:**
Mills (*American Seal Lock Co.*), 232.
Gilyard, 330.
Edwards, 374.
Lake (*Shepard & Seaman*), 444.
Nash, 663.
Brolly (*Sullivan*), 861.
Walton, 892.
Tildesley & Barnard, 1029.
Lüttringhaus, 1075.
Lüttringhaus, 1102.
Pichery, 1522.
Hobbs & Hart, 1611.
Heald, jun., 1784.
Elwell & Grove, 2048.
Lancaster, 2074.
Chambers, 2108.
Wilkes, 2117.
Bagster, 2373.
Williamson & Hitchin, 2465.
Brodie, 2472.
Osborn, 2764.
Brown, 2866.
Kromer, 2940.
Gardner, 2953.
Zimdars, 3340.
Pfeiffer (*Huppe & Bender*), 3463.

**Locks, &c.—*cont.***
James, 3934.
Gulliver, 3942.
Clark, 3954.
Gompertz, 3965.

**Locomotive engines.** *See* "Steam-engines."

**Looking glasses:**
Smith (*Alliger*), 2346.
Tongue (*Givry*), 2519.
March, 3212.

**Looming or piecing yarn.** *See* Weaving ("tieing-in" warps).

**Looms.** *See* "Weaving."

**Looped fabrics.** *See* "Knitting."

**Low water indicators.** *See* "Gauges."

**Lozenges:**
Cooper, 3160.
Cooper, 3232.

**Lubricating.** *See* "Oiling."

**Luncheon or refreshment cases and bottles:**
Clark (*Odrovonge-Wysocki*), 1536.
Fleming, 1694.

## M.

**Machine chairs.** *See* "Chairs."

**Magazines for storing gun-cotton; gunpowder, explosive oils, &c.:**
Mackie, 2693.
Browne & Davenport, 3144.
Muschamp, 3218.

**Magic lanterns:**
Woodbury (*Marcy*), 1562.
Hatch, 3769.

**Magnesia and its salts:**
Weldon, 317.
Clark (*Blanchard, Bang & Provost*), 388.
Rich, 547.
Solvay, 1525.
Dufrené (*Faure & Kessler*), 2205.
Clark (*Blanchard*), 2265.
Morfit, 2344.

**Magnetism.** *See* "Electricity."

**Mail and despatch bags:**
Fish & Wotherspoon, 7.
Pichery, 1523.
Purkis & Lessware, 2574.

**Maize (treating).** *See* "Grain and seeds."

**Malachite (artificial):**
Davey, 1443.

**Malt:**
Gibbs & Borwick, 314.
Curtis, 227.
Bonneville (*Beckman-Olafson*), 276.
Musgrave & Musgrave, 505.
Perry, 1821.
Milburn & Jackson, 2266.
Lane & Onions, 2368.

**Mandrils:**
Feldtmann (*Bolonin*), 1020.
Doubelt (*Lwoff*), 1649.
De Latouche, 3468.
Brown, 3500.
Quadling & May, 3539.

**Manganese compounds:**
Weldon, 317.
Hargreaves & Robinson, 3062.

**Manger logs or balls.** *See* "Stables."

**Mangling:**
Bradford, 763.
Thomas & Taylor, 795.
Davey, 1610.
Pigott, 2844.
Harvey, 3746.
Urquhart & Lindsay, 3836.

**Manometers:**
Lake (*John*), 1332.

**Mantel pieces:**
Stone, 203.
Stone, 1115.

**Mantles.** *See* "Dresses."

**Manure; treating sewage and mud:**
Bradburn, 210.
Thomas, 217.
Gibbs & Borwick, 314.
Prange & Whitthread, 379.
Clark (*Blanchard, Bang & Provost*), 388.
Robey, 435.
Fulda, 448.
Carter, 465.
Hillé, 484.
Rich, 547.
Sillar, Sillar & Rawson 575.
Gedge (*Salmon*), 626.
Perkins, 642.
Blackburn, 671.
Lee, 694.
Denton & Field, 743.
Lockyer, 774.
Scott, 849.
Henderson (*Chapusot*), 926.
Campbell, 944.
Symington, 955.
Abel (*Ville*), 958.
Johnson (*Adamson*), 1051.
Badin, 1065.
Rich, 1243.
Lake (*Lewis & Pratt*), 1257.
Christy, jun. (*Bobrownicki*), 1327.
Darlow, 1334.
Brown, 1393.
Danchell, 1394.
Johnson (*Du Lin & Guillemare*), 1410.
Robey, 1421.
Monckton, 1460.
Christy, jun., & Bobrownicki, 1492.
Murray, 1577.
Sillar, Sillar & Rawson, 1806.
Tongue (*Hogel & Bigelow*), 2115.
Stanford, 2118.
Copland, 2141.
Robey, 2181.
Clark (*Blanchard*), 2265.
Milburn & Jackson, 2266.
Vaughan (*Striedter*), 2277.
Brown, 2279.
Packard, jun., 2328.
Morfit, 2341.
Morfit, 2344.
Morfit, 2357.
Synge, 2496.
Scott, 2538.
Gerland & Johnson, 2569.
Gerland (*Messrs. Albert*), 2614.
Standen, 2687.
McDougall, 2801.
Morfit, 2823.
Boynton, 2934.
Tanner, 2974.
Astrop, 2991.
Scott, 3028.
Target, 3215.
Field, 3348.
Scott, 3355.
Manning, 3356.
De Michele, 3371.
Alsing, 3412.
Norton, 3443.
Hills & Biggs, 3464.

**Manure, &c.—*cont.***
Curror & Dewar, 3529.
Belford, 3533.
Scott & Scott, 3670.
Best, 3687.
Hart & Hart, 3734.
Scott, 3755.
Abel (*Booroff*), 3788.
Rendall & Rendall, 3805.
Target, 3821.
Haseltine (*Craven*), 3843.
Shaw, 3868.
Fereday, 3882.
Badin, 3913.

**Manure distributors:**
Harrison, 77.
Bracewell, Riley & Bracewell, 185.
Cocks, 1560.
Hope, 3885.

**Manuscripts (copying).** *See* "Copying."

**Maps and charts:**
Ramsten, 2852.

**Maps or models of the sea bottom (obtaining for submarine works):**
Jensen (*Steinbrenner*), 1474.

**Marble.** *See* "Stone."

**Margarin:**
Wilson, 446.
Clark (*Deiss*), 3323.

**Marine-engines.** *See* "Steam-engines."

**Mariners compasses.** *See* "Compasses."

**Marking and clenching labels:**
Purkis & Lessware, 2574.

**Marking linen, goods and parcels:**
Carter, 697.
Lake (*Lincoln & Royer*), 2831.
Richards (*Holman*), 3297.

**Marking or numbering casks, cases, boxes, &c.** *See* "Branding."

**Marking or ruling paper.** *See* "Rulers."

**Marking or scoring at billiards.** *See* "Registering."

**Marquees.** *See* "Tents."

**Mashing.** *See* "Mixing."

**Masts for ships.** *See* "Ships' masts."

**Matches; match holders:**
Rollason & Brough, 172.
Grafton, 341.
Pace, 369.
Walch, 471.
Ward, 486.
Henry (*Peltier & Paillard*), 1336.
Mills (*Heyl & Brehmer*), 2291.
Letchford, 2392.
Bryant, 2896.
Beil, 3158.
Clark (*Aubertin & Hannart*), 3441.
Parkins, 3699.
Pidding, 3894.
Henderson (*Anne*), 3900.

**Mats.** *See* "Rugs."

**Mattresses.** *See* "Upholstery."

**Meal.** *See* "Grinding corn."

**Measures for liquids; proportional measurers:**
Gilkerson, 535.
Northcote, jun., 1702.
Gooding, 1835.
Clarke, 2209.
Cox, 2769.

**Measures or scales for tailors use:**
Schor, 2444.

**Measuring and indicating speed of ships:**
Lake (*Biggs*), 1019.

**Measuring and registering liquids drawn from casks, &c.:**
Bañolas-Arnau, 196.
Punshon, 347.
Gooding, 1835.
Ure, 3475.

**Measuring angles on charts, maps, &c.** *See* "Angles."

**Measuring cloth while fulling:**
Cogswell, Wilkins & Wilkins, 3345.

**Measuring corn, &c.:**
Baxter, 893.

**Measuring deodorants supplied to closets or urinals:**
Bostel, 269.
Synge, 2683.
King, Messrs., 3760.

**Measuring distances, altitudes and angles:**
Eckhold, 2909.

**Measuring flow of sewage.** *See* "Meters."

**Measuring water supplied to closets, urinals, &c.**
Pontifex & Barton, 3033.
Underhay, 3068.
Sweet, 3082.
Waide, 3366.
Holcroft, 3456.
Blogg, 3489.
Wright, 3513.
Clarke, 3726.

**Measuring woven fabrics:**
Hacking & Hacking, 1142.

**Meat (preserving).** *See* "Preserving food."

**Meats (dishes or stands for holding pressed or cooked).** *See* "Dishes."

**Medallion carving:**
Cunningham, 55.

**Medals:**
Seyd, 368.
Brewer (*Le Blanc & Vincent*), 2925.

**Medals and lozenges.** *See* "Confectionery."

**Medical treatment of animals:**
Arnold, 699.
Benson (*Lewis & Way*), 1258.
Darlow, 1334.
Robbe (*Brunet*), 2941.
Selby, 3466.

**Medical treatment of man:**
Sullivan, 111.
Hollingworth, 229.
Seymour, 288.
Cunningham & Corbin, 361.

**Medical treatment of man—*cont.***
Bell, 362.
Adams, 664.
Pulvermacher, 809.
Decamps, 844.
Darlow, 888.
Taber (*Carrao*), 1133.
Kay & Kay, 1173.
Fontana, 1201.
Bonneville (*Gache*), 1290.
Bending, 1299.
Darlow, 1334.
Darlow, 1665.
Palmer (*Lacrus*), 2183.
Mattson, 2251.
Hunt (*Garratt*), 2483.
Haseltine (*Moses*), 2493.
Morgan, 2503.
Pulvermacher, 2771.
Veitch, 2865.
Boyle, 2875.
Hayward, 2996.
Jones & Wyatt, 3128.
Darlow, 3221.
Lee, 3277.
Wetton, 3492.
Seymour, 3600.
Welton, 3823.

**Medicines:**
Curtis, 327.
Lake (*Clarke*), 329.
Gahn, 1240.
Rich, 1243.
Clark (*Viard*), 2403.
Cooper, 3160.
Cooper, 3232.
Von Hennings, 3628.

**Mercury:**
Coffey, 64.
Johnson (*Roswag & Pauville*), 313.
Johnson (*Ponsard Metallurgical Society*), 426.

**Metallic salts:**
Woods, 277.
Weldon, 359.
Smith, 425.
Rowan, 476.
Weldon, 602.
Sonstadt, 1054.
Rich, 1243.
Christy, jun., & Bobrownicki, 1492.
Dennis, 1616.
Milner, 1881.
Clark (*Pollock*), 1934.
Dufrené (*Faure & Kessler*), 2205.
Pollard, Schofield & Butel, 2630.
Hargreaves & Robinson, 3032.
Thompson, 3202.
Marriott, 3323.
Player, 3501.

**Metallic surfaces and articles (producing by chemical means):**
Petitjean, 3680.

**Metals (annealing and tempering):**
Bradburn, 159.
Lake (*Morison*), 373.
Harrison, 719.
Tildesley, 1028.
Stone, 1115.
Bytheway, 1182.
Lake (*Rogers & Burchfield*), 1574.
Lake (*Woodbury*), 1618.
Lake (*Woodbury*), 1619.
Hibell, 1624.
Marsden, 1741.
Lyttle, 1811.
Newton (*Ames*), 1997.
Haseltine (*Alexander*), 2282.
Hadfield, 2396.
Frickinger, 2527.
Torr & Johnstone, 2642.
Lake (*Severance*), 2719.
Rath, 2805.
Kayser, 3048.
Price (*Hasenclever*), 3370.
Brunner (*Schulz & Heyl*), 3470.
Spencer & Smith, 3964.

**Metals (assembling and uniting pieces by the intervention of more fusible metals employed as a solder):**
Newton (*Woodbridge*), 3702.

**Metals (boring.)** *See* "Boring."

**Metals (casting and moulding):**
Johnson (*Sellers*), 80.
Ashberry, 164.
Cooper, 296.
Cross, 337.
Thorpe, 342.
Seyd, 368.
Ireland & Ireland, jun. (*Pink*), 432.
Abel (*Hainsworth*), 480.
Bell & Walker, 502.
Ellis, 611.
Washburn, 620.
Abel (*Durfee*), 685.
Harrison, 719.
Johnson, 732.
Gillies, 873.
Lake (*Taylor & Brightman*), 968.
Hanctin, 987.
Sellars, 989.
Newton (*Knight*), 1012.
Greene, 1056.
Stone, 1115.
Briggs, 1429.
Carter & Carter, 1434.
Messenger, 1545.
Boyd (*Wallace*), 1830.
Newton (*Thompson*), 1864.
Young, 1912.
Macrone & McKenzie, 1916.
Lake (*Meneely*), 2050.
Nicholson, 2104.
Lake (*Westcott Type-setting Co.*), 2111.
Timiriazeff, 2161.
Pullen, sen., & Pullen, jun., 2163.
Sutcliffe & Sutcliffe, 2194.
Hadfield, 2396.
Gally, 2461.
Lochhead, 2518.
Anderson, 2655.
Clark (*Cumin & Martel*), 2677.
Johnson (*Forquignon & Ehrmann*), 2712.
Chappell, 2753.
Sax, 2824.
Archer, jun., 3013.
Everitt, 3266.
Horton, 3286.
Newton (*Thompson*), 3411.
De Latouche, 3468.
Newton (*Gloeckner*), 3668.
Scott, 3719.
Wilkinson & Taylor, 3723.
Bullough & Leachman, 3774.
Duncan & Wilson (*Lauder*), 3834.

**Metals (cleaning):**
Gedge (*Raimbault*), 492.
Gilbee (*Icely*), 1223.

**Metals (coating).** *See* "Coating metals."

**Metals (compressing or "upsetting"):**
Lake (*West*), 1406.
Morgan-Brown (*Fuller*), 1977.
Sax, 2824.
Lones, Lones, Vernon & Holden, 3884.

**Metals (cutting).** *See* "Cutting metals."

**Metals (estimation of):**
Lockyer, 3846.

**Metals (forging, hammering, welding, bending and shaping):**
Hutton, 236.
Bonneville (*Furon*), 237.
Macomber, 268.
Piedbœuf, 295.

**Metals (forging, &c.)—*cont.***

Fletcher, jun. (*Brocklehurst*), 326.
Sutherland, 385.
Whitham, 582.
Wright, Broom & Bruce, 654.
Johnson (*Whipple & Whipple*), 657.
Harrison, 719.
Hughes (*Hendrys & Webster*), 869.
Parsons, 878.
Clarke, 1100.
Lake (*Caumon* (*Absterdam*)), 1135.
Whitworth, 1298.
Clark, 1322.
Hunt (*Garnier & Hessenland*), 1381.
Ashton, 1390.
Deregnaucourt, 1431.
Désgoffe, 1447.
Gedge (*Radelet-Laurent & Son*), 1480.
Rogers, 1573.
Walton & Jones, 1607.
Lake (*Woodbury*), 1619.
Doubelt (*Lescoff*), 1649.
Marsden, 1741.
Fletcher, 1949.
Lake (*Menesly*), 2050.
Bartle (*Bartle*), 2116.
Lake (*Bell*), 2130.
Lake (*Bell*), 2131.
Haseltine (*Alexander*), 2282.
Husband, 2315.
Clark, 2355.
Broughton, 2380.
Martin, 2597.
Procter, 2697.
Lake (*Severance*), 2719.
Mitchell & Newton, 2767.
Johnson (*Liogier*), 2944.
Larkin, Leighton & White, 2964.
Glossop & Cooper, 3113.
Johnson (*Wheeler*), 3130.
Lake (*Mitchell*), 3239.
Clark, 3246.
Ré (*Vessoli*), 3405.
Ryder & Ryder, 3413.
De Latouche, 3468.
Hadfield, 3524.
Askham, 3526.
Tuddenham, 3762.
Haseltine (*Bradley*), 3910.

**Metals (repairing and cementing):**

Hadfield, 2396.

**Metals (rolling):**

Cooke, 123.
Hannay, 230.
Walton, 259.
Rowan, 284.
Seyd, 368.
Cameron, 570.
Whitham, 582.
Gedge (*Vigour*), 587.
Johnson, 732.
Ross, 751.
Bleckly, 847.
Parsons, 878.
Johnson, 929.
Morgan-Brown (*Fuller*), 950.
Lake (*Chisholm*), 1002.
Walton & Fallows, 1008.
Mills (*Sinclair & Lange*), 1130.
Lake (*Caumon* (*Absterdam*)), 1135.
Hunt (*Garnier & Hessenland*), 1380.
Hunt (*Garnier & Hessenland*), 1381.
Deregnaucourt, 1451.
Lake (*Woodbury*), 1618.
Lake (*Woodbury*), 1619.
Sullivan, 1689.
Marsden, 1741.
Lake (*Hiler*), 1847.
Davis, 1869.
Morgan-Brown (*Fuller*), 1977.
Berry & Berry, 2345.
Johnson (*Forquignon & Ehrmann*), 2712.
Boeklen, 2803.
Hodkinson & Clarke, 2884.
Huggett & Huggett, 3037.
Johnson (*Wheeler*), 3130.
Winne & Winne, 3249.
Horton, 3286.

**Metals (rolling)—*cont.***

Kirk, 3459.
De Latouche, 3468.
Brown, 3500.
Osborn, 3515.
Lones, Lones, Vernon & Holden, 3884.
Bedson, 3941.

**Metals (smelting, reducing and refining); treating ores; obtaining iron and steel:**

Johnson (*Sellers & Sellers*), 50.
Johnson (*Sellers*), 59.
Montgomerie, 79.
Healey, 85.
Sellars, 100.
Howson & Thomas, 136.
Whitwell, 171.
Smith, 182.
Warner, 189.
Joy, 199.
Hinde, 222.
Bossé (*Viger*), 243.
Woods, 277.
Wood, 302.
Newton (*Harris*), 308.
Johnson (*Rosseag & Pauville*), 313.
Waplington & Barker, 323.
Johnson (*Nes*), 325.
Jarman & Mitchell, 338.
Johnson (*Caldwell*), 340.
Johnson (*Ponsard Metallurgical Society*), 424.
Johnson (*Ponsard Metallurgical Society*), 426.
Ireland & Ireland, jun. (*Pink*), 429.
Edwards & Robinson, 475.
Anderson, 513.
Rice, 520.
Henderson, 554.
Dingley, 556.
Elsdon, 573.
Ellis, 611.
Powers, 653.
Stephens, 677.
Abel (*Durfee*), 685.
Andrews, 705.
Garneri, 715.
Johnson (*Hignette*), 750.
Beaman & Onions, 766.
Smith (*Martin*), 768.
Russell & Hutton, 794.
Gerhard & Light, jun., 801.
Howson & Thomas, 859.
Stevenson, 870.
Cowper, 887.
Snelus, 908.
Crampton, 931.
Benson & Hetherington, 972.
Johnson (*Ponsard Metallurgical Society*), 1018.
Webster, 1027.
Bonneville (*Thomas - Payen & Roux*), 1046.
Danks, 1053.
Brewer (*Baker*), 1055.
Larkin, Leighton & White, 1062.
Zenger, 1063.
Bodmer, 1080.
Lake (*Date & Date*), 1088.
Anderson, 1089.
Danks, 1111.
Renshaw, 1123.
Stephens & Harvey, 1124.
Paris, 1146.
Holcroft & Lackersteen, 1156.
Briggs & Ramsay, 1184.
Pickles, 1196.
Scott, 1220.
Johnson (*Wilson*), 1302.
Fitz Gerald & Molloy, 1376.
Johnson (*Ponsard Metallurgical Society*), 1409.
Bousfield (*Post*), 1422.
Sutherland, 1432.
Sheenan, 1454.
Monckton, 1460.
Brewer (*Bacault & Roche*), 1466.
Benson, 1469.
Becks, 1514.
Wood, 1542.
Brooks, 1571.
Lake (*Rogers & Burchfield*), 1574.

**Metals (smelting, &c.)—*cont.***

Imray (*Blair*), 1589.
Hughes (*Bicheroux*), 1598.
Selwyn, 1608.
Dennis, 1616.
Charpentier, 1720.
Harrop & Corbett, 1723.
Morton, 1739.
Faure, 1742.
Birch, 1770.
Imray (*Blair*), 1795.
Johnson (*Sellers*), 1799.
Haseltine (*Middleton*), 1801.
Lyttle, 1811.
Hampton, 1837.
Lake (*Hiler*), 1847.
Smith & Willans, 1876.
Thomas, 1886.
Vaughan (*Franklin*), 1902.
Woods & Clark, 1923.
Chatwood & Collins, 1954.
Gorman, 2017.
Stewart & Defty, 2020.
Richter, 2023.
Todd, 2035.
Vaughan (*Pernot*), 2046.
Mathews (*Hancock*), 2051.
Cook & Lafone, 2069.
Lake (*Westcott Type-setting Co.*) 2111.
Bartle (*Bartle*), 2116.
Defty, 2191.
Walker, 2206.
Rose, 2232.
Bousfield (*Wilson*), 2263.
Hutton, 2275.
Haseltine (*Alexander*), 2282.
Dormoy & Paget, 2287.
Henderson, 2318.
Du Motay, 2331.
Richardson, Richardson & Spencer 2337.
Bonneville (*Levallois*), 2389.
Green (*Utsch*), 2412.
Joy, 2426.
Gordon (*Scheerer*), 2434.
Lake (*Harding*), 2443.
Emmens, 2453.
Ferrie, 2454.
Truswell & Holden, 2477.
Johnson (*Ponsard Metallurgical Society*), 2480.
Wright & Alexander, 2497.
Thornton, 2499.
Parker & Wade, 2528.
Dann (*Eickard*), 2559.
Robertson, 2586.
Wood, 2618.
Torr & Johnstone, 2642.
Withy & Gibson, 2672.
Jackson & Southan, 2690.
Johnson (*Forquignon & Ehrmann*) 2712.
Dixon, 2717.
Lake (*Severance*), 2719.
Bury, 2816.
Dick & Dick, 2827.
Mason, 2842.
Siemens, 2861.
Payne & Clarke, 2943.
Greener & Ellis, 2950.
Mallet & Scholefield, 2952.
Brakell, 2956.
Larkin, Leighton & White, 2964.
Danks, 2971.
Ferrie, 3008.
Preston, 3010.
Legge, 3039.
Newton (*Walter*), 3142.
Desjardin, 3244.
Withy & Gibson, 3252.
Horton, 3286.
Rae, 3308.
Wilson, 3347.
Hahn, 3417.
Jensen (*Brooks*), 3477.
Player, 3501.
Jenner, 3505.
Richardson, Richardson & Spencer 3609.
Knott, 3622.
Siemens, 3642.
Newton (*Gloeckner*), 3668.
Morton, 3676.
Lake (*Roberts*), 3678.

Metals (smelting, &c.)—*cont.*
Casson (*Dormoy*), 3763.
Glase, 3781.
Simon & Simon (*Sommerfeld*), 3863.
Rydill, 3901.
Williams, 3919.
Spencer, 3957.
Bousfield (*Scowden*), 3968.

Meter tanks for supplying definite quantities of sewage, &c. to land:
Denton & Field, 742.

Meters for gas and fluids:
Hunt (*Sickels & Thorndike*), 83.
Budenberg (*Schäffer & Budenberg*), 95.
Andrews, 99.
Baffolas-Arnau, 198.
Marsh, 462.
Heshuysen, 519.
Bablon, 616.
Wright, Broom & Bruce, 654.
Muschamp, 883.
Gedge (*Plas*), 953.
Symington, 955.
Lake (*John*), 1332.
Fleury & Tylor, 1391.
Hollands, Maker & Jefferies, 1663.
Brown, 1671.
Carey, 1687.
King, 1990.
Tonkin, 2045.
Johnson (*Picoard*), 2290.
Alder, 2514.
Pontifex & Barton, 3068.
Weems, 3254.
Alley, 3342.
Haseltine (*Spooner*), 3692.
Bailey & Grindrod, 3808.
Kinsey, 3832.

Mica:
Bear, 416.
Bear, 462.
Racey & Young, 496.
Nickson, 542.

Microscopes:
Wenham, 1640.

Middlings (purifying). *See* "Grinding corn."

Mildew in packed fabrics (preventing). *See* "Presses."

Military drill (teaching.) *See* "Teaching."

Milk condensing; milk cans; cooling milk:
Lake (*Shepard & Beeman*), 444.
Stephens, 1342.
Jolliffe, 1979.
Chinnock, 2485.

Mill-bands. *See* "Bands, &c."

Millboard (substitutes for):
Brode & Brode, 804.

Milling. *See* "Fulling."

Millstones. *See* "Stone."

Mincing or chopping machines:
Burrows, 2120.
Topham, 3634.

Mineral water fountains:
Burr (*Prall*), 253.

Mining; quarrying; getting coal and other minerals:
Cranston, 145.
Hanor, 271.
Beaumont & Appleby, 302.
Wright, Broom & Bruce, 654.
Poch, 656.
Newton (*Andrews*), 676.

Mining, &c.—*cont.*
Cope, 692.
Jensen (*Mortensen*), 791.
Benson, 863.
Dunn, 939.
Manent, 968.
Gowans, 978.
Pilling, 1026.
Hurd & Firth, 1036.
Watteau (*François & Dubois*), 1298
Plimsoll, 1400.
Doria, 1625.
Maddison, 1798.
Horsley, 1855.
Birkinshaw, 1991.
Gillott & Copley, 2000.
Simpson & Hurd, 2106.
Imray (*Denayrouze*), 2148.
Lake (*Silver*), 2185.
Walker, 2206.
Greig & Gillott, 2302.
André, 2312.
Scott, 2376.
Joseph, 2401.
Bartholomew, 2521.
Rand, 2748.
Shepherd & Stuckey, 2756.
Newton (*Norrbin & Chiesen*), 2766.
Parkin, 3028.
Walker & Clarke, 3050.
Johnson (*Rand & Waring*), 3125.
Hurd & Simpson, 3241.
Plimsoll, 3274.
Plimsoll, 3281.
Hadfield, 3524.
Stevens, 3547.
Easton & Tattersall, 3624.
Newton (*Tilghman*), 3636.
Böhringer, 3639.
Taylor, 3725.
James, 3771.
Holt, 3869.
Penn, 3871.
Cross, 3928.
Osborn, 3929.

Mitrailleuses. *See* "Fire-arms."

Mitres (cutting). *See* "Cutting wood."

Mittens:
Timbrill (*Harrison*), 390.

Mixing, mashing and stirring:
Cook & Henderson, 482.
Hamer, 630.
Benson (*Honell*), 799.
Joseph, 927.
Hanstin, 967.
Stone, 1115.
Holcroft & Lackersteen, 1156.
Bytheway, 1162.
Lake (*Lewis & Pratt*), 1267.
Smith, 1267.
Clark (*Audouin*), 1456.
Bedson, 1468.
Lake (*Luckenbach*), 1585.
Rae, 1745.
Parlour, 2014.
Lake (*Walton*), 2067.
Tongue (*Hogel & Bigelow*), 2115.
Heath, Evens & Heath, jun., 2123.
Copland, 2141.
Conron, 2180.
Milburn & Jackson, 2266.
Maw, 2360.
Lane & Onions, 2366.
Williams, 2395.
Dodge, 2459.
Sebille, 2491.
Vincent, 2510.
Goodall, 2515.
Wood, 2618.
Walton, 2630.
Evrard, 2720.
Hunt (*Riley*), 2761.
Stone, 2790.
Bartlett, 2854.
Hughes (*Schultze*), 2889.
Boynton, 2924.
Mallet & Scholefield, 2958.
Brakell, 2966.
Larkin, Leighton & White, 2964.

Mixing, &c.—*cont.*
Clayton, Clayton, jun. & Howlett, 2975.
Hargreaves & Robinson, 2982.
Astrop, 2991.
Scott, 3022.
Withy & Gibson, 3252.
Glasier, 3278.
Harrison, 3288.
Parnacott, 3292.
Kiesling, 3303.
Rae, 3306.
Cowper, 3323.
Johnson (*Hunter & Osborn*), 3424.
Richardson, Richardson & Spencer, 3609.
Chiris, 3767.
Hunt, 3775.
Haseltine (*Orawen*), 3842.
Simon & Simon (*Sommerfeld*), 3863.
Fereday, 3882.
Conniff, 3895.

Models; model making:
Edwards, 1287.
Robson, 2470.

Money tills:
Hookham 1988.

Mooring; mooring anchors:
Saunders, 278.

Mops. *See* "Brushes."

Mortar. *See* "Cement."

Mortars. *See* "Fire-arms."

Mosaics (imitation):
Davey, 1443.

Motive-power (air and gas). *See* "Air-engines."

Motive-power (electro):
Cunningham & Cunningham, 2768.

Motive-power from a chimney draught:
Göransson, 1155.

Motive-power from carburetted hydrogen and air:
Palmer (*Errani & Andaru*), 1128.

Motive-power from combined vapours and gases:
Brookes (*Hoevelmann*), 2768.

Motive-power from mixed hydrocarbon and air:
Hughes (*Errani & Andaru*), 2481.

Motive-power from the rise and fall of tides:
Tommasi, 1768.
Lake (*Mekarski*), 3328.

Motive-power (gunpowder). *See* "Air-engines."

Motive-power (mechanical):
Schüssler & Wagner, 328.
Edmonds, 647.
Newton (*McComb & Mahan*), 1058.
Bonneville (*Cavalerie*), 1478.
Hunt (*Rebour*), 1711.
Poggi (*Solari*), 1928.
Hepple, 2128.
Linney, 2168.
Ray (*Jean*), 2178.
Benquet, 3546.
Haseltine (*Manson*), 3491.
Zysel, 3908.
Eiben & Buckhols, 3908.

Motive-power (steam). *See* "Steam-engines."

**Motive-power (water).** *See* "Water-wheels."

**Motive-power (wind).** *See* "Air-engines."

**Moulding fuel:**
Sellars, 100.
Warlich, 454.
Setchell, 457.
Cory & Cory, 555.
Eagles (*Bergehausen, Philippe & Kiesling*), 1263.
Johnson (*Peillon*), 1383.
Hamel, 1392.
Gathercole, 1627.
Lodge, 1744.
Rae, 1745.
Heath, Evens & Heath, jun., 2125.
Crampton, 2262.
Deere, 2332.
Danvers, 2617.
Carter, 2651.
Berry, 2665.
Stone, 2798.
Boynton, 2924.
Brakell, 2956.
Clayton, Clayton, jun. & Howlett, 2975.
Perkins, 2997.
Maccallum, 3040.
Harrison, 3288.
Parnacott, 3302.
Kiesling, 3302.
Rae, 3308.
Banks, 3368.
Heath, Evens & Heath, jun., 3644.

**Moulding slag:**
Joy, 199.

**Mouldings and architectural ornaments:**
Cunningham, 55.
Stone, 208.
Lamteigne, 848.
Coulter & Harpin, 959.
Stone, 1115.
Lloyd, 1482.
Jaynor, 2361.
March, 3212.
Rose, 3433.
Magnus, 3831.
Abel (*Lucas*), 3982.

**Moustache protectors and trainers:**
Jones, 232.
Newton & Swallow, 2343.

**Mowing.** *See* "Reaping."

**Mucilaginous solutions (applying):**
Johnson (*Bly*), 1693.

**Muffs; tippets; finger protectors; hand warmers:**
Carlile, 71.
Price, 91.
Zahn, 2738.
Davidson, 2963.
Dodge (*Dodge*), 3059.
Robison, 3063.

**Mule indicators.** *See* "Indicating or counting."

**Mules.** *See* "Spinning, twisting.

**Mushroom beds (heating).** *See* "Horticulture."

**Music (copying):**
Green, 3814.

**Music holders and supports:**
Dupont, 930.
Perkins, 1389.
Redmayne, 1894.
Lake (*Chéradame, Le Dreux & Oursel*), 2053.
Redmayne, 2706.

**Music (turning over leaves of):**
Beale, 1893.
Volk, 2250.
Mudge, 2731.

**Music stools or chairs:**
Lake (*Chéradame, Le Dreux & Oursel*), 2053.
Smith, 2196.
Brooks (*Ulmann*), 3314.

**Musical instruments:**
Wheatstone & Stroh, 30.
Smith, 842.
Dupont, 930.
Venables, 1132.
Breavington & Isaacs, 1301.
De Laskarzewski & Kehrmann, 1313.
Hughes (*Günther*), 1349.
Wise (*Huebscher*), 1374.
Lake (*Steinway*), 1489.
Liebich, 1463.
Smith (*Kastner & Lavignac*), 1648.
Gleig, 1807.
Millward (*Atkins & Drewer*), 1850.
Woods & Clark, 1923.
Cottino, 2201.
Haseltine (*Woods*), 2321.
Oldroyd, 2559.
Goffrié & Schucht, 2445.
Blackmore, 2505.
Dick & Dick, 2527.
Gowland, 3019.
Gilbee (*Procopé*), 3051.
De Laskarzewski & Kehrmann, 3234.
Farmer, 3381.

**Musical notes and other signs when played (tracing):**
Rossignol, 990.

**Mustard; packing mustard:**
Alloway, 2138.
Hemingway, 3465.


## N.


**Nail, spike and tack drawers:**
Schlesinger (*Dixon*), 98.
Bousfield (*Heaton*), 1591.
Müller (*Noot*), 1629.

**Nails, spikes and rivets; nailing:**
Lake (*Blake*), 264.
Johnson (*Lawrence*), 339.
Clark (*Wills & Kingsland*), 609.
Wright, Broom & Bruce, 654.
Johnson (*Whipple & Whipple*), 657.
Rose, 751.
Prince & Blakemore, 922.
Morgan-Brown (*Fuller*), 950.
Whittle, 993.
Spence (*Coutelier*), 1108
Garey, 1812.
Morgan-Brown (*Fuller*), 1977.
Lake (*Bell*), 2131.
Morgan-Brown (*Fuller*), 2432.
Morgan-Brown (*Brooks*), 2736.
Brewer (*Le Blanc & Vincent*), 2925.
Cox, 2963.
Huggett & Huggett, 3067.
Heath, Evens & Heath, jun., 3644.
Lake (*Alden*), 3691.
Edmeston, 3729.

**Names (illuminating street and other).** *See* "Sign boards."

**Necklaces:**
Bidder, Lamb & Scrivener, 2149.
Goss, 3129.

**Neck-ties; cravats; scarf boxes; scarf pins:**
Clark (*Klotz, jun., & Co.*), 47.
Coates & May, 168.
Scruton, 194.
Hughes, 206.

**Neck-ties, &c.**—*cont.*
Tombs, 493.
Fyfe, 2316.
Macaulay, 2570.
Goss, 3129.
Walker, 3256.
Elsden, 3658.

**Needle sheaths and protectors:**
Jenkins, 1106.

**Needle threaders:**
Lake (*Mercer*), 120.
Gaspary, 1536.
Symons, 2567.

**Needles; needle cases and holders:**
Harper, 75.
Morrall, 398.
Clark (*Sheffield & Mellor*), 899.
Printz (*Kayser*), 466.
Weir, 580.
Hanna, 637.
Barlow (*Shinn*), 871.
Shrimpton, 907.
Clark, 1260.
Jackson, 1311.
Cottrill, 1502.
Lewis, 1831.
Chenhall, 1992.
Tongue (*Giery*), 2519.
Symons, 2567.
Clements, 2686.
Milward, 3227.
Kendrick, 3636.
Hughes (*Mallett Manufg. Co.*), 3833.
Hughes (*Mallett Manufg. Co.*) 3920.

**Nets; netting needles:**
Shrimpton, 907.
Lewis & Ward, 1449.

**Night-carts (producing vacuum in):**
Varnaison, 2508.

**Nightlights:**
Webb, 2770.

**Nippers.** *See* "Pincers."

**Nitrous oxide or other gases (administering):**
Crapper, 231.

**Note books.** *See* "Pocket books."

**Noxious gases and vapours (arresting and preventing):**
Clark, 27.
Gowans, 87.
Ronald & Farmer, 89.
Seddon, 106.
Simpson, 146.
Hollingworth, 229.
Carter, 465.
Johnson, 472.
Macpherson, 564.
James, 778.
Cochran, 1009.
Kyle, 1095.
Pochet & Lemoine, 1232.
Lyttle, 1264.
Carter & Carter, 1434.
Lake (*Daniels*), 1500.
Armytage, 1539.
Costa & Lawrie, jun., 1593.
Hobbs & Hart, 1611.
Sillar, Sillar & Rawson, 1806.
Perry, 1891.
Newton (*Thompson*), 1864.
Denham, Messrs., 1956.
Caillot, 2036.
Stanford, 2118.
Johnson, 2126.
Pullen, sen., & Pullen, jun., 2163
Sutcliffe & Sutcliffe, 2194.
Synge, 2327.
Tylor, 2392.
Banner, 2303.
Newton & Price, 2402.
Lipscombe, 2450.
Varnaison, 2508.

**Noxious gases, &c.—*cont.***

Caffall, 2622.
Greig, 3091.
Reeves, 3100.
Johnson, 3148.
Aldridge, 3157.
Capel, 3168.
Teer, 3243.
Manning, 3356.
Newton (*Thompson*), 3411.
Brunner (*Schulz & Heyl*), 3470.
Belford, 3533.
Forrest & Hayes, 3542.
Owen (*Touchert*), 3672.
Brocklehurst & Crossley, 3688.
Scott, 3755.
Abel (*Booroff*), 3788.
Spencer, 3804.
Haseltine (*Craven*), 3843.
Fereday, 3882.
Mackinnon, 3951.

**Nozzles.** *See* "Roses."

**Nursing apparatus:**

Groussin, 1208.
Kern, 1450.
Nash, 2447.

**Nut and lobster crackers:**

White, 1104.
White, 1765.

**Nuts (disintegrating).** *See* "Disintegrators."

**Nuts and washers:**

Ellis, 652.
Don & Wright, 970.
Fish (*Mallory*), 1303.
Walton & Jones, 1607.
Arthur, 1884.
Fletcher, 1949.
Brewer (*Le Blanc & Vincent*), 2925.
Barrow, 3199.
Clark (*Allen & Ritchel*), 3388.
Bourne, 3471.
Edmeston, 3729.
Johnson (*Vreeland*), 3947.

## O.

**Oakum.** *See* "Ropes."

**Oil-cake:**

Lake (*Cavayé*), 1596.
Cheesbrough (*Fisher*), 1948.

**Oil-cloths:**

Vanel, 606.
Don & Wright, 970.
Thorpe, 2427.

**Oiling fibres:**

Barraclough & Barraclough, 441.
King, 1148.
Baird, 1516.
Whitaker & Ashworth, 1933.
Paterson & Messrs. Sanderson, 2153.

**Oiling or lubricating; materials for oiling:**

Newton (*Mettam & Sanson*), 46.
Lake (*Allen*), 163.
Clark (*Doty, Miltimore, Mickel & Mickel*), 220.
Lake (*Clark*), 251.
Smith & Coventry, 290.
Seyd, 368.
Edwards, 374.
Rowley, 408.
Hughes (*Baldwin*), 590.
Wright, Broom & Bruce, 654.
Scott, 658.
Taylor, 667.
Sutcliffe, 673.
Lee, 694.
Gray, 721.
Benson (*Honell*), 799.
Muschamp, 883.

**Oiling or lubricating, &c.—*cont.***

Robson, 947.
Newton (*Gwynn, Gilbert & Barnes*), 995.
Lilly, 1101.
Porritt, 1107.
Russell, 1274.
Arnold, 1404.
French, 1415.
Baird, 1516.
Dupré, 1541.
Holt, 1725.
Clark (*Eggleston*), 1749.
Johnson (*Albaret*), 1826.
Middleton, 1925.
Parker & Robson, 1947.
Adams, 2076.
Beattie, 2096.
Simpson & Hurd, 2106.
Blair, 2140.
Knott (*Speakman*), 2172.
Walker, 2206.
Edwards, 2259.
Mills (*Bennett*), 2283.
Clark (*Sidebotham*), 2338.
Bailey & Westley, 2709.
Rand, 2748.
Story & Lynde, 2791.
Harris, 2867.
Price & Wilkins, 2877.
Clark (*Wilson & Folk*), 2882.
Abel (*Orlowski*), 2883.
Lake (*Rice*), 2933.
Huggett & Huggett, 3037.
Anderson, 3110.
Glover, jun., 3150.
Edwards, 3166.
Lacy, 3224.
Roberts, 3280.
Clark (*Deiss*), 3323.
Buchanan, jun., 3376.
Clark (*Ritchel & Allen*), 3399.
Marsh, 3408.
Hornby, 3445.
Bass, 3499.
Keirby, 3558.
West, 3562.
Newton (*Sloot*), 3606.
Clark (*Wilson & Folk*), 3629.
Haseltine (*Goodrich*), 3641.
Lake (*Faull*), 3722.
Bullough & Leachman, 3774.
Perkins, 3845.
Quin, 3962.
Quin, 3963.
Wood, 3962.

**Oil-pumps:**

Kay & Kay, 1173.

**Oils (animal):**

Coffey, 64.
Morfit, 140.
Wilson, 446.
Lee, 694.
Heaton & Francis, 765.
Beveridge (*Jurgens*), 943.
Johnson (*Adamson*), 1051.
Mills (*Hutchinson*), 1140.
Lake (*Grell*), 1176.
Baird, 1516.
Thom & Stenhouse, 2186.
Cox & Cox, 2204.
Deiss, 2476.
Hughes (*Daudenart & Verbert*), 2746.
Webb, 2770.
Walton, 2845.
Clark (*Deiss*), 3323.
Haseltine (*Craven*), 3843.

**Oils from seeds; vegetable oils:**

Coffey, 64.
Morfit, 140.
Ford, 223.
Wilson, 446.
Heaton & Francis, 765.
Platt, 969.
Mills (*Hutchinson*), 1140.
Lake (*Grell*), 1176.
Baird, 1516.
Bonneville (*De Masses*), 1552.
Lake (*Cavayé*), 1586.
Cheesbrough (*Foros & Judson*), 1600.
Cheesbrough (*Fisher*), 1948.

**Oils from seeds—*cont.***

Readett, 2346.
Walton, 2845.
Johnson, 3014.
Clark (*Deiss*), 3323.
Lake (*Kersting*), 3737.

**Oils of tar, mineral oils, hydrocarbons:**

Coffey, 64.
Young, 413.
Cook & Henderson, 432.
Young, 459.
Young, 617.
Young, 618.
Lee, 694.
Lucas, 747.
Heaton & Francis, 765.
Benson (*Honell*), 799.
Letchford & Nation, 890.
Meldrum, 935.
Munro, 938.
Sellars, 969.
Lake (*Grell*), 1176.
Cornish, 1420.
Clark (*Audouin*), 1456.
Porter & Porter, 1494.
Baird, 1516.
Moseley, 1637.
Dorsett, 1892.
Russ, 1964.
Miller, 2033.
Cox & Cox, 2204.
Young, Brash & Scott, 2467.
Webb, 2770.
Walton, 2845.
Browne & Davenport, 3144.
Spence (*Cheever*), 3273.
Lake (*Kersting*), 3737.
White & Hendry (*Hale, jun.*), 3869.

**Oleine; oleic acid:**

Lake (*Grell*), 1176.
Clark (*Deiss*), 3323.

**Omnibuses.** *See* "Carriages."

**Opening boxes, canisters, tins, &c.:**

Schlesinger (*Dixon*), 96.
Warren, 113.
Elmslie, 704.
Lund, 1306.
Lund, 3338.
Chinnock, 3425.

**Optical illusions:**

Spong, 3020.

**Ordnance.** *See* "Fire-arms."

**Ordure road-cleaners.** *See* "Roads (cleansing)."

**Ores (bags for containing).** *See* "Bags."

**Ores of metals (treating).** *See* "Metals (smelting)."

**Ornamenting surfaces and articles:**

Blackmore, 2506.
Hunt (*Welle & Zoll*), 2915.
March, 3212.
Neville, 3862.
Abel (*Lucas*), 3923.

**Ornaments (carbonizing, glazing or coating):**

Thwaites, Fondeville & Bertin, 2963.
Smith, 3915.

**Ovens:**

Whitwell, 171.
Box, 283.
Jarman & Mitchell, 338.
Lake (*Bailey, Goodrich & Locke*) 857.
Tildesley, 1028.
Jensen (*Erickson & Maardt*), 1122.
Rowlands, 1179.
Jensen (*Erickson & Maardt*), 1463.
Fearnley, 1461.
Knowles & Mayell, 1579.

**Ovens—*cont.***
Johnson, 1583.
Lake (*Luckenbach*), 1585.
Thomas, 1684.
Smith & Willans, 1876.
Phillips, 1956.
Gorman, 2017.
Harrison, 2371.
Truswell & Holden, 2477.
Warry, 2513.
Stone, 2543.
Aitken, 2948.
Brakell, 2956.
Basford, 3285.
Smith, 3313.
Garrood, 3603.
Koettgen (*Kunstädter*), 3794.
Conniff, 3895.

**Oxidation and incrustation (preventing and removing):**
Weeks, 141.
Ellis & Dobson, 247.
Friedmann, 254.
Pigott, 286.
Smith, 624.
Barlow, jun. (*Brown*), 781.
Young, 868.
Lake (*Ellsworth*), 900.
Shrimpton, 907.
Smith, 921.
Manent, 963.
Zenger, 1063.
Lake (*Cousmon* (*Abiterdam*)), 1135.
Imray (*Blair*), 1795.
Woods & Clark, 1923.
Casbay, 2093.
Hill, 2097.
Allen & Fitzgerald, 2206.
Hudson, Walker & Robson, 2348.
Vincent, 2510.
Alder, 2514.
Lake (*Bloodgood*), 2572.
Lafargue, 2668.
Bousfield (*Heaton*), 2707.
Strachan (*Gibson*), 2799.
Rath, 2805.
Mason, 2842.
Meyer, 2951.
Kayser, 3048.
Newton (*Rump*), 3056.
Meunier, 3164.
Darlow, 3221.
Glazier, 3278.
Lees & Garforth, 3324.
Bewley, jun., 3363.
Bagley, 3421.
Wetton, 3492.
Church, 3555.
Seymour, 3600.
Haseltine (*Goodrich*), 3641.
Henry (*Ehrmann*), 3692.
Spencer, 3804.
Henderson (*Demailly*), 3852.
Prideaux, 3898.
Longley, 3952.

**Oxides:**
Rowan, 476.
Anderson, 513.
Rich, 547.
Weldon, 602.
Russell & Hutton, 794.
Joseph, 927.
Smith, 1267.
Fish, 1362.
Fitz Gerald & Molloy, 1376.
Morfit, 2341.
Morfit, 2344.
Morfit, 2357.
Harrison (*Harrison, Bros., & Co.*), 2532.
Pollard, Schofield & Butel, 2630.
Rowe, 3173.
Marriott, 3322.

**Oxygen:**
Wanklyn, 3361.

**Ozone:**
Newton (*Turner & Vanderpool*), 1905.

## P.

**Packing cases.** *See* "Boxes."

**Packing for engines, pumps, valves, &c.:**
Fish, 6.
Lake (*Allen*), 163.
Betts, 355.
Fletcher, 549.
Church, 563.
Walker, 613.
Wright, Broom & Bruce, 654.
Scott, 658.
Gray, 721.
Somerville, 776.
Temple & Danter (*Osborn*), 816.
Clark (*Floyd, Dieterich & Schüssler*), 901.
Johnson (*Tingley*), 914.
Don & Wright, 970.
Newton (*Gwynn, Gilbert & Barnes*), 995.
Robins, 1154.
Teal, 1190.
Westinghouse, jun., 1226.
Renby, 1276.
Fielding, 1316.
Kochs, 1339.
Clark (*Massey*), 1351.
Couper, 1369.
Ley & Pinder, 1401.
Arnold, 1404.
Morris, 1457.
Goodfellow, 1487.
Messenger, 1545.
Imray (*Blair*), 1589.
Lake (*Campbell & Saunders*), 1656.
Sullivan, 1689.
Colby, 1727.
Clark (*Falcimagne*), 1748.
Mc Farlane, 1779.
Johnson (*Lemaire & Sonnois*), 1791.
Imray (*Blair*), 1795.
Dawes, 1857.
Middleton, 1925.
Parker & Robson, 1947.
Robertson (*Robertson*), 1982.
Mills (*Bennett*), 2283.
Oldroyd, 2359.
Haseltine (*Sanderson*), 2435.
Church, 2469.
Smith (*Copeland*), 2565.
Fish, 2671.
Reynolds, 2696.
Harris, 2867.
Abel (*Orlowski*), 2883.
Lake (*Rice*), 2933.
Fisher, 2976.
Trémaux, 3068.
Brown (*Colladon*), 3126.
Forbes, 3250.
Roberts, 3280.
Alley, 3342.
Barr, 3343.
Johnson (*Ward*), 3386.
Furness (*Furness*), 3452.
Brydon, Davidson & Warrington, 3507.
Keirby, 3558.
Robertson, 3665.
Perkins, 3845.
Haseltine (*Bradley*), 3910.

**Packing or making bales.** *See* "Presses."

**Paddle wheels.** *See* "Propelling ships."

**Pails; slop pails; fire-buckets:**
Lake (*Shepard & Seaman*), 444.
Don & Wright, 970.
Reeves, 3100.
Glazier, 3278.

**Painting fabrics:**
Lake (*Guichard & Dupont*), 962.

**Paints; painting; graining; colouring:**
Morton, 96.
Clark (*Weyde*), 149.
Wigzell, 298.
Sellars, 393.
Rowan, 476.
Roberts, 623.
Smith (*Weyde & Sarony*), 641.
Joseph, 927.
Bonneville (*Charton*), 1079.
Gray (*Renox*), 1215.
Lake (*Densmore*), 1458.
Christy, jun., & Bobrownicki, 1492.
Lysons & Forbes, 1634.
Faulkner, 1642.
Johnson (*Bly*), 1693.
Davis, 1714.
Milner, 1881.
Bonneville (*Charton*), 2133.
Harrison (*Harrison, Bros., & Co.*), 2582.
Pollard, Schofield & Butel, 2630.
Hunt (*Wells & Zell*), 2915.
Knott, 3154.
Rowe, 3173.
Glazier, 3278.
De Michele, 3371.
Palmer, 3379.
Bagley, 3421.
Chinnock, 3425.
Faulkner, 3531.
Ager, 3854.
Harrington, 3959.

**Palliasses.** *See* "Upholstery."

**Pamphlets (covering).** *See* "Bookbinding."

**Pants.** *See* "Knitting."

**Paper, papier mâché and paper pulp (making):**
Edwards, 73.
De Negri, 76.
Ungerer, 257.
Annandale, jun., 270.
Burgess, 358.
Sellars, 393.
Roeckner & Lunge, 463.
Browne (*Count of Montebello*), 510.
Annandale, jun., 548.
Granville, 605.
Whyte, jun., 845.
Lowe, 965.
Lake (*Taylor & Brightman*), 968.
Platt, 969.
Don & Wright, 970.
Stevenson, 1003.
Lake (*Swift*), 1044.
Clark (*Legat*), 1098.
Ladelle, 1195.
Clark (*Bastaert*), 1245.
Cowper, 1265.
Duff, 1293.
Bentley & Jackson, 1346.
Marshall, 1357.
Fitz Gerald & Molloy, 1376.
Menzies & Davies, 1476.
Irvine & Mackintosh, 1604.
Dickson, 1643.
Nicoll, 1657.
Lake (*Locke & Locke*), 1676.
Riddell, 1690.
Gray, 1722.
Dupont, 1769.
Mc Farlane, 1779.
Lee, 1804.
Unwin & Ovens, 1839.
Van Baerle, 1851.
Davidson, 1896.
Salt, 1901.
Downing, 1975.
Noble, 2006.
Mills (*Dorlan*), 2029.
Woore & Watt, 2257.
Blyth & Southby, 2417.
Routledge, 2431.
Lochhead, 2518.
Noad, 2610.
Protheroe, 2619.
Haseltine (*La Monte, Saxe & Clayton*), 2670.

**Paper, &c.—*cont.***
Micheá, 2787.
McLaurin, 2788.
Ungerer, 2985.
Dickson, 2995.
Wood & Wood, 3146.
Foley, 3198.
McMurray, 3255.
Symonds, 3296.
Page, 3306.
Cowper, 3382.
Seitz, 3446.
Sinclair, 3716.
Tidcombe, jun., 3718.
Hart & Hart, 3734.
Denis, 3801.
Page, 3830.
Hawke, 3847.
Holker, 3851.
Houghton, 3853.
Johnson (*Leconte*), 3056.

**Paper (application of):**
Bash, Bash & Bash, 52.
Edwards, 73.
Lake (*Croasdale*), 148.
Lake (*Hitchcock*), 405.
Little, 1207.
Witty, 1248.
Lake (*Conger*), 1304.
Marshall, 1357.
Turner & Davies, 1512.
Davis, 1714.
Newton (*Harrington*), 1751.
Newton (*Johnson*), 1780.
Turney, 1838.
Thwaites, Fondeville & Bertin, 2003.
Mills (*Heyl & Brehmer*), 2291.
Ambler, 2484.
Chamblant, 2522.
Drinkwater, 2625.
Bigg & Hunt, 2795.
Lasché, 2893.
Glazier, 3278.
Turney, 3305.
Siecinoski, 3451.
Thompson, 3874.
Harrington, 3959.

**Paper (cutting and ornamenting):**
Morton, 96.
Barraclough & Barraclough, 441.
Lake (*Warth & Jobbins*), 536.
Lake (*Guichard & Dupont*), 962.
Tidcombe, jun., 1007.
Deregnaucourt, 1431.
Salmon & Brownhill, 2105.
Pinches, 2409.
Cail, 2458.
Robson, 2470.
Haseltine (*La Monte, Saxe & Clayton*), 2670.
Bebro, 2718.
Bigg & Hunt, 2795.
Grierson & Philips, 3494.

**Paper fasteners:**
Alekan & Alekan, 1141.
Hart, 2306.

**Paper foil:**
Morton, 1739.

**Paper hangings:**
Wilbaux, 1406.
Mills (*Dorlan*), 2029.
Lasché, 2893.
Balin, 3001.

**Paper (preparing transparent and washable paper for writing or drawing):**
Wagner, 3437.

**Paper ruling machines.** *See* "Rulers."

**Paper (waterproofing):**
Lake (*Morris*), 162.
Vanel, 606.
De Zuccato, 1968.
Bagley, 3461.

**Paper weights:**
Abel (*Lucas*), 3923.

**Parallel bars.** *See* "Games."

**Parallel motion (obtaining).** *See* "Propelling or driving."

**Parasols.** *See* "Umbrellas."

**Parchment; transparent and washable parchment:**
Lake (*Hitchcock*), 405.
Duff, 1293.
Wagner, 3437.

**Parquetry.** *See* "Floors."

**Partitions to prevent transmission of sound:**
Castle, 1968.
Stones & Castle, 2007.

**Paste or size (applying to spindles).** *See* "Spindles."

**Pasting and lining paper, &c.**
Black, 2751.
McLaurin, 2788.
Balin, 3001.
Clark (*Ford*), 3572.

**Pastry.** *See* "Confectionery."

**Patterns or templets:**
Baylis, 2993.

**Paving.** *See* "Road making."

**Pea ranges.** *See* "Horticulture."

**Peat:**
Box, 282.
Monckton, 423.
Robey, 455.
Holden, 716.
Brode & Brode, 804.
Danchell, 1394.
Gathercole, 1627.
Alloway, 2158.
Berry, 2665.
McKelvie, 2855.
Boynton, 2924.
Brakell, 2956.
Clayton, Clayton, jun., & Howlett, 2975.
Parnacott, 3292.
Rae, 3306.
Pelly (*Von Horn*), 3330.
Banks, 3362.
Curror & Dewar, 3529.
Hart & Hart, 3734.
Love, 3780.

**Pedestals.** *See* "Columns."

**Pegs for boots and other articles made of leather:**
Oliver, 3623.
Johnson (*Dodge*), 3969.

**Pencils; crayons; pencil-holders:**
Johnson (*Reckendorfer*), 578.
Lewis, 1831.
Clark (*Aubertin & Hannart*), 3441.
Faulkner, 3531.

**Pendants.** See "Jewellery."

**Pens; penholders; pen trays:**
Brandauer, 631.
Shrimpton, 907.
Lüttringhaus, 1075.
Schulze (*Streubel*), 1385.
Ricketts, 1556.
Eckhold, 1612.
Lewis, 1831.
Turney, 1838.
Mason, 2780.
Mason, 2842.
Wiley 2851.

**Pens, &c.—*cont.***
Schulze (*Streubel*), 2880.
Whitehouse & Phillips, 3016.
Gold, 3211.
Richards (*Holman*), 3297.
Vaughan (*Daguin*), 3422.
Clark (*Aubertin & Hannart*), 3441

**Perambulators:**
Kern, 1450.
Shaw, 2375.
Bonneville (*Wightman*), 3533.

**Perforating capsules.** *See* "Bottle stoppers."

**Perforating paper, &c.:**
Bayly, 319.
Little, 1207.
Newton (*Harrington*), 1751.
Lake (*Jebb*), 1869.
Hodges, 1965.
Bean, 2267.
Pinches, 2409.
Bond, 2566.
Mackenzie, 2645.
Bebro, 2718.
Clark (*Vincensi & Messrs. Gaillard*), 2898.
Jennings (*Craig*), 3230.
Evans, 3293.
Johnson, 3463.
Sloper, 3740.

**Perfuming.** *See* "Scent."

**Petticoats.** *See* "Dresses."

**Phosphates (bags for containing).** *See* "Bags."

**Phosphorus:**
Anderson, 513.
Dann (*Féron*), 1699.
Gedge (*Pelhuche*), 1984.
Moritt, 2341.
Player, 3501.
Lyte (*Storck, Hentsch, Hentsch, Lutscher & Grintinger*), 3553.
Lyte (*Storck, Hentsch, Hentsch, Lutscher & Grintinger*), 3553.

**Photograph frames; exhibiting photographs:**
Lanteigne, 848.
Tongue (*Giory*), 2519.

**Photography:**
Edwards, 73.
Clark (*Weyde*), 149.
Smith (*Weyde & Sarony*), 641.
Garey, 826.
Window, 840.
Slater, 1396.
Faulkner, 1642.
Faulkner, 1700.
Smith (*Alliger*), 2346.
Lake (*Weston & McDonald*), 2684.
Beckett, 2743.
Courtenay, 2846.
Ferranti & Turner, 3069.
Palmer, 3379.
Faulkner, 3531.
Woodbury, 3654.

**Photometers:**
Browning, 1789.

**Pickers for looms.** *See* "Weaving (pickers)."

**Picks:**
Gowans, 978.
Deregnaucourt, 1431.

**Picture frames:**
Lanteigne, 848.
Don & Wright, 970
Blackmore, 2505.
March 3212.

**Pictures; portraits; prints:**
Edwards, 73.
Window, 840.
Lanteigne, 848.
Slater, 1395.
Faulkner, 1642.
Faulkner, 1700.
Robson, 2470.
Courtenay, 2848.
Ferranti & Turner, 3069.
Palmer, 3379.
Noad, 3839.

**Piers; jetties:**
Page, 135.
Saunders, 278.
Gregg & Evans, 771.
Jensen (*Steinbrenner*), 1474.
Bois, 1703.
Milroy, 1788.
Kochs, 1865.
Casbay, 2093.
Cay, 2471.
Lake (*Bloodgood*), 2672.
Douglas, 2613.

**Pile fabrics (weaving).** *See* "Weaving carpets."

**Pile driving; piles:**
Smith, 921.
Sissons & White, 1918.
Penn, 3871.

**Pillar letter-boxes:**
Anderson, 1483.

**Pillars.** *See* "Columns."

**Pillows.** *See* "Upholstery."

**Pills; administering pills:**
Sullivan, 111.

**Pincers, nippers and pliers:**
Schlesinger (*Dixon*), 98.
Boyd & Henderson, 261.
Bousfield (*Heaton*), 1591.
Clark (*Hust*), 1678.
Newton (*Thompson*), 3698.

**Pin-drills.** *See* "Tools."

**Pineries.** *See* "Horticulture."

**Pinions.** *See* "Wheels for machinery."

**Pins; breast pins; sticking pins in paper; pin boxes; pincushions:**
De Forest, 1564.
De Forest, 1565.
Turney, 1838.
Burton, 2276.
Ladbury, 3841.

**Pipes, tubes and syphons:**
Fish, 6.
Tullis, 8.
Johnson (*Sellers & Sellers*), 50.
Spence, 56.
Healey, 85.
Ronald & Farmer, 89.
Kent, 90.
Lake (*Radde*), 121.
Lee, 128.
Lake (*Morris*), 162.
Burr (*Prall*), 253.
Lake (*Myers*), 316.
Allibon & Manbré, 318.
Calvert & Taylor, 350.
Lake (*Morison*), 373.
Sutherland, 385.
Johnson (*Busby*), 419.
Smith (*Michaels & Broadwell*), 477.
Bell & Walker, 502.
Heshuysen, 519.
Cameron, 570.
Westinghouse, jun., 595.
Smith, 624.
Wright, Broom & Bruce, 654.
Rxall, 672.

**Pipes, &c.—*cont.***
Wier, 711.
Johnson, 732.
De Negri, Herrmann & Guest, 736.
Deards, 761.
Benson (*Hayes*), 802.
Temple & Danter (*Osborn*), 816.
Pye-Smith & Ribbans, 831.
Werner, 865.
Parsons, 878.
Allen, 894.
Howard & Bousfield, 905.
Smith, 921.
Don & Wright, 970.
Lafrogne, 994.
Mills, 1039.
Gedge (*Saint-Aubin*), 1047.
Brewer (*Baker*), 1055.
Kyle, 1095.
Rosier, 1166.
Edge, 1170.
Ramsden, 1172.
Barlow (*Naegeli*), 1208.
Cazes, 1252.
Gedge (*Chevallier*), 1255.
Eagles (*Bergehausen, Philipps & Kiesling*), 1263.
Cowper, 1265.
Morgan-Brown (*Goulding*), 1270.
Myerns, 1286.
Box, 1309.
Kochs, 1339.
Hodge & Hodge, 1344.
Newton (*Anderson*), 1352.
Mills (*Demeure*), 1384.
Morris, 1386.
Carter & Carter, 1484.
Stewart, Stewart & Wotherspoon, 1441.
Weibel, 1462.
Siemens, 1473.
Lake (*Daniels*), 1500.
Brown, 1511.
Messenger, 1545.
Begg, 1580.
Hanson, 1644.
Doubelt (*Lwoff*), 1649.
Lake (*Campbell & Saunders*), 1656.
Newton (*Dod*), 1658.
Hack, 1683.
Westinghouse, jun., 1691.
Smith, 1750.
Körting, 1796.
Maddison, 1798.
Haseltine (*Middleton*), 1801.
Ray (*Perrellon*), 1803.
Perry, 1821.
Newton (*Thompson*), 1864.
Taylor, 1904.
Newton (*Turner & Vanderpool*), 1905.
Denham, Messrs., 1936.
Millward (*Fricker, jun.*), 1945.
Phillips, 1956.
Crosland, 1962.
Gorman, 2017.
Jensen (*Hoegaard*), 2022.
Sauvée (*Duclos*), 2024.
Uhry, 2026.
Alley, 2032.
Vogan, 2060.
Fern, 2088.
Cunningham, 2132.
Cheesbrough (*Clough*), 2156.
Eades & Eades, 2166.
Knott (*Speakman*), 2171.
Sutcliffe & Sutcliffe, 2194.
Renshaw, 2231.
Pullar, 2242.
Morgan-Brown (*Houghton*), 2268.
Hutton, 2275.
Thomas, 2314.
Löbnitz, 2319.
Gedge (*Rives*), 2324.
Mill, 2367.
Chandler, Messrs., 2416.
Blackham, 2421.
Dodge, 2459.
Truswell & Holden, 2477.
Ambler, 2484.
Sebille, 2491.
Blackmore, 2505.
Vincent, 2510.
Lochhead, 2518.
Morfit, 2545.

**Pipes, &c.—*cont.***
Foster, 2551.
Macintosh & Boggett, 2554.
Smith (*Copeland*), 2565.
Hargreaves & Robinson, 2573.
Edwards, 2599.
Torr & Johnstone, 2642.
Fish, 2671.
Reynolds, 2696.
Evrard, 2720.
Suckling, 2747.
Chappell, 2753.
Bayliss, 2789.
Porter, 2800.
Abel (*Orlowski*), 2883.
Hall, 2885.
Whittle, 2901.
Haseldine, 2912.
Alleyne, 2930.
Bailey, 2954.
Sauvée (*Duclos*), 2967.
Fisher, 2976.
Lake (*Weston*), 3004.
Preston, 3010.
Morris, 3029.
Pontifex & Barton, 3033.
Sims & Holmes, 3042.
Tugby, 3049.
Walker, 3093.
Fell, 3118.
Brown (*Colladon*), 3126.
Johnson (*Wheeler*), 3130.
Oddy, 3136.
Cook, 3147.
Chandler, Messrs., 3153.
Sanderson & Proctor, 3161.
Partington & Riley, 3165.
Malam, 3180.
Harper, 3233.
Lake (*Mitchell*), 3239.
Bolton, 3240.
Reynolds, 3264.
Everitt, 3266.
Glazier, 3278.
Roberts, 3280.
Belleville, 3284.
Kiesling, 3302.
Crosland, 3310.
Lees & Garforth, 3324.
Prince (*Schlamp*), 3332.
Barr, 3343.
Field, 3348.
Hare & Stuart, 3359.
Bewley, jun., 3363.
Waide, 3366.
Johnson (*Ward*), 3386.
Newton (*Thompson*), 3411.
Kay, 3420.
Blyth, 3423.
Norton, 3443.
Tall, 3444.
Tully & Robinson, 3467.
Gedge (*Palau*), 3485.
Brookes (*Farjon*), 3490.
Harrison, 3523.
Jones, 3530.
Thorneloe, 3534.
Quadling & May, 3559.
Hitchcock, 3579.
Kaulbach, 3584.
Newton (*Dod*), 3588.
Maine, 3612.
Murdoch (*Roche*), 3647.
Smith, 3667.
Garbutt, 3679.
Donaldson, 3681.
Newton (*Woodbridge*), 3702.
Gedge (*Gaudefroy, fils*), 3712.
Sinclair, 3716.
Taylor, 3725.
Bullough, 3770.
Helbronner (*Durand*), 3785.
Abel (*Booroff*), 3788.
Flamand, 3792.
Edwards, 3795.
Helbronner (*Durand*), 3800.
Baker, 3807.
Henderson (*Demailly*), 3820.
Taunton, 3859.
Kennelly, 3866.
Holt, 3869.
Kesterton, 3870.
Suckling, 3893.
Rydill, 3901.
Smith, 3915.

Pipes, &c.—*cont.*
Quin, 3933.
Rydill, 3938.
Williamson & Dale, 3939.
Bousfield (*Scowden*), 3968.

Pipes (cleaning and removing obstructions from). *See* "Tube cleaners."

Pipes (connecting with mains under pressure):
Morris, 1457.
Morris, 2504.

Pipes for smoking:
Boger, 246.
Prince (*Bauer & Hiess*), 1282.
Crop, 2016.
Fellows, 2843.
Ward, 3532.
Triscott, 3904.

Pistols. *See* "Fire-arms."

Pistons and piston packings:
Fish, 6.
Caspersen (*Blair*), 28.
Benson (*Cope & Maxwell*), 104.
Geneste, 241.
Lake (*Brayton*), 432.
Fletcher, 549.
Church, 563.
Wright, Broom & Bruce, 654.
Sutcliffe, 673.
Holmes, 923.
Gedge (*Piau*), 953.
Manent, 963.
Wright, 1005.
Lilly, 1101.
Porritt, 1107.
Glaysher, 1128.
Teal, 1190.
Clark (*Lewis*), 1210.
Westinghouse, jun., 1226.
Clark (*Massey*), 1351.
Ley & Pinker, 1401.
Preston, Prestige, Preston & Prestige, 1438.
Goodfellow, 1487.
Rooke, 1513.
Eckhold, 1547.
Hack, 1683.
Sullivan, 1689.
Holt, 1725.
Colby, 1727.
Tommasi, 1738.
Clark (*Falcimagne*), 1748.
Johnson (*Lemaire & Sonnois*), 1791.
Maxwell, 1868.
Parker & Robson, 1947.
Robertson (*Robertson*), 1982.
King, 1990.
Sauvée (*Duclos*), 2024.
Tonkin, 2045.
Cottino, 2201.
Mills (*Bennett*), 2283.
Judson (*Cogswell*), 2439.
Church, 2469.
Fish, 2671.
Reynolds, 2696.
Clark (*De Morès*), 2785.
Harris, 2867.
Hall, 2885.
Gedge (*Loir*), 2921.
Trémaux, 3068.
Brown (*Colladon*), 3126.
Wilcke, 3209.
Lake (*Critchlow*), 3229.
Reynolds, 3264.
Roberts, 3280.
Barr, 3343.
West & West, 3402.
Furness (*Furness*), 3452.
Brydon, Davidson & Warrington, 3507.
White, 3549.
Keirby, 3558.
Kay, 3602.
Ashton, 3607.
Clayton, 3660.
Robertson, 3665.
Jordan & Paul, 3784.

Pistons, &c.—*cont.*
Perkins, 3845.
Williamson & Walker, 3912.
Brydon, Davidson & Warrington, 3921.

Pitch:
Lucas, 747.
Clark (*Audouin*), 1456.

Pitchforks:
Deregnaucourt, 1431.
Rodden, 3568.

Pivots or arbors:
Clark, 2176.

Plait folders for sewing-machines. *See* "Sewing."

Plaited paper cups for holding confectionery. *See* "Confectionery."

Plane irons. *See* "Cutting wood."

Planing. *See* "Cutting."

Plans in relief:
Lanteigne, 848.

Plant labels. *See* "Horticulture."

Plants and trees (application of):
Brandon (*De Gonzalo & Grisei*), 82.
Ungerer, 257.
Gardner, 491.
Browne (*Count of Montebello*), 510.
Grinlinton (*Dawson*), 724.
Lowe, 965.
Don & Wright, 970.
Coales, 1013.
Lake (*Swift*), 1044.
Duff, 1293.
Irvine & Mackintosh, 1604.
Dickson, 1643.
Dupont, 1769.
Smith, 1802.
Tourre, 1878.
Alloway, 2138.
Gedge (*Jourdeuil & Parisot*), 2322.
Michea, 2786.
Michea, 2787.
Watson, 2904.
Dickson, 2995.
Foley, 3198.
Von Hennings, 3628.
Andrews, 3645.
Andrews, 3646.
Denis, 3801.

Plaster. *See* "Cement."

Plasters:
Pulvermacher, 809.
Fontana, 1201.
Pulvermacher, 2771.
Seymour, 3600.

Platters. *See* "Dishes."

Pliers. *See* "Pincers."

Ploughing, tilling and cultivating land:
Lewis, 60.
Hill, 65.
Noddings, 134.
Baker & Cox, 560.
Goulton & Sharpe, 577.
Kenward, 632.
Wright, Broom & Bruce, 654.
Edwards, 725.
Perkins, Faux & Campain, 728.
Corbett, 731.
Howard & Bousfield, 889.
Hughes, 936.
Boby, 962.
Lake (*Carter*), 992.
Nicholson, 1021.
Lake (*Carter*), 1049.
Lake (*Cauman (Absterdam)*), 1135.
Sorby & Richardson, 1150.

Ploughing, &c.—*cont.*
Davey, 1165.
Clark (*Lewis*), 1210.
Maynard, 1223.
Lake (*Baxter*), 1244.
Fison, 1368.
Howard & Bousfield, 1405.
Ransome, 1507.
Baker & Cox, 1551.
Cocks, 1560.
Mc Gregor, 1816.
Russell, 1817.
Porter, 1820.
Lewin, 1833.
Bousfield (*Bloecker*), 1873.
Gedge (*Pelhache*), 1984.
Newton (*Thorne*), 1986.
Nicholson, 2104.
Hyde, 2127.
Love, 2179.
Hayes, 2564.
Wood, 2792.
Corbett, 3032.
McLennan, 3151.
Greig & Greig, 3498.
Howard & Bousfield, 3516.
Ogle, 3560.
Peile, 3633.
Lewin, 3690.
Nicholson, 3730.
Clemow, 3797.
Hope, 3885.

Plough-shoes used in excavating coal, &c. *See* "Mining."

Plugging steam-boiler tubes. *See* "Steam-boilers."

Plumbing and levelling:
Johnson & Johnson, 1198.
Hubbard, 1471.
Rabone (*Kenyon*), 1968.
Turner, 2236.

Plummer blocks:
Lake (*Rueff*), 1553.

Plush. *See* "Weaving carpets."

Pneumatic conveyances:
Lake (*Radde*), 121.
Zimdars, 3340.

Pneumatic looms. *See* "Weaving."

Poaching eggs. *See* "Cooking."

Pocket diaries and note books; pocket cases for stamps, &c.:
Millar, 244.
Newton (*Gatseuil*), 366.
King, 1515.
Long, 1635.

Pockets (detective safety):
Owens & Pusey, 3176.

Polishing and burnishing; polishing powders:
Lake (*Gear*), 379.
Hodges, 733.
Shaw & Shaw, 1685.
Lake (*Weston & McDonald*), 2694.
Kayser, 3048.
Rowe, 3173.
Bousfield (*Lewis*), 3415.
Newton (*Tilghman*), 3626.
Viles, 3663.
Magnus, 3831.
Hughes (*Mallett Manufg. Co.*), 3832.

Pontoons:
Walker & Ragon, 1268.
Duer, 1615.
Bois, 1703.
Kochs, 1965.
Turnbull, 2012.
Napier, 2197.

Porcelain. *See* "Earthenware."

**Portable closets.** *See* "Water-closets."

**Portfolios:**
Lüttringhaus, 1075.
Johnson (*Chamoüin*), 2714.

**Portmanteaus; travelling cases:**
Everickx, 260.
Don & Wright, 970.
Grimerd, jun., 1430.
Williamson & Hitchin, 2465.

**Postal cards, paper, boxes and receptacles:**
Hunt (*McCrea*), 450.
Clark (*McClintock*), 1061.
Powles, 3087.
Evans, 3293.
Lamacraft, 3514.

**Posts and poles:**
Lyttle, 109.
Hodgson, 418.
Lyttle, 867.
Lyttle, 1213.
Larmuth & Norton, 1412.
Désgoffe, 1447.
Siemens, 1473.
Hughes, 2832.
Ross, 3109.
Thomas, 3462.
Lloyd, 3638.
Shedlock & Shedlock, 3728.
Tuddenham, 3762.

**Potash.** *See* "Alkalies."

**Potassium.** *See* "Sodium."

**Potato roots (preventing or arresting the attack of blight):**
Belford, 3533.

**Potatoe drills.** *See* "Sowing."

**Potatoes, turnips and other roots (digging and gathering):**
Corbett, 731.
Cocks, 1559.
Hunter, 2680.
Corbett, 3022.

**Pots or jars.** *See* "Jars."

**Pots for cooking.** *See* "Saucepans."

**Pottery.** *See* "Earthenware."

**Pouches:**
Oldroyd, 364.
Macintosh & Boggett, 2947.
Meiter, Smith & Minasi, 3457.

**Powder boxes.** *See* "Boxes."

**Powder casks.** *See* "Gunpowder."

**Powders (administering):**
Sullivan, 111.

**Power indicators.** *See* "Governors."

**Power looms.** *See* "Weaving."

**Precious stones.** *See* "Gems."

**Preserving and preparing articles of food:**
Newton (*Barre-Pin & Barre-Pin*), 37.
Warren, 113.
Walker, 272.
Barlow (*Rousseau, jun., & Cochard*), 464.
Prada (*Toninetti*), 835.
Monteith (*Urquhart*), 857.
Werner, 863.
Johnson (*Adamson*), 1051.

**Preserving food, &c.—*cont.***
Newton (*McComb*), 1136.
Warry, 1162.
Collett, 1236.
Lund, 1306.
Stephens, 1342.
Denne & Hentschel, 1373.
Baird, 1516.
Lake (*Taylor & Holland*), 1575.
Doyen, 1743.
Abate, 1853.
Johnson (*Enault & Co.*), 1951.
Jolliffe, 1979.
Lake (*Chèradame, Le Droux & Oursel*), 2053.
Burrows, 2120.
Lake (*Martin & Beath*), 2210.
Lake (*Weed*), 2369.
Hunt (*Bray*), 2406.
Dufrené (*Sacc*), 2529.
Ross (*Dawson*), 2067.
Davies (*Atkinson*), 2902.
Alison, 3163.
Forbes, 3250.
Lund, 3328.
Target, 3378.
Clark, 3393.
Topham, 3634.
Hickson, 3799.
De Malortie & Woods, 3803.

**Preserving beer.** *See* "Brewing."

**Preserving canvas and felt:**
Finlay, 1330.

**Preserving cordage and cables:**
Morgan-Brown (*Möller*), 3067.

**Preserving metallic and wooden surfaces:**
Smith, 624.
Manent, 963.
Finlay, 1330.
Casbay, 2093.
Hill, 2097.
Bradley & Speight, 2143.
Probert, 2398.
Morgan-Brown (*Möller*), 3067.
Ross, 3109.
Williams, 3272.
Glazier, 3278.
Henry (*Ehrmann*), 3692.

**Preserving paper:**
Finlay, 1330.
Morgan-Brown (*Möller*), 3067.

**Preserving sea-weed.** *See* "Sea-weed."

**Preserving skins and leather:**
Barlow (*Rousseau, jun., & Cochard*), 464.
Finlay, 1330.
Bateson, 2144.

**Preserving stone, bricks, slate, tiles, cement and plaster:**
Finlay, 1330.
Thwaites, Fondeville & Bertin, 2004.
Drevet, 2638.
Smith, 2782.
Morgan-Brown (*Möller*), 3067.

**Preserving textile and felted fabrics:**
Dufrené (*Mousin*), 1163.
Morgan-Brown (*Möller*), 3067.
Mendel, 3747.

**Presses, compressing and packing:**
MacDonald & Eskrett, 62.
Hodgart (*Jones*), 88.
Schemioth, 94.
Lake (*Campbell*), 169.
Walker, 196.
Bonneville (*Le Clercq*), 238.
Annandale, jun., 270.
Lake (*Clarke*), 329.
Betts, 355.
Nichol & Eckersley, 455.

**Presses, &c.—*cont.***
Lake (*Seibert*), 525.
Cory & Cory, 555.
Church, 563.
Wright, Broom & Bruce, 654.
Lancaster & Bullough, 683.
Clachar (*McArthur & Kerr*), 792.
Wilson, 1174.
Heyer, 1204.
Collett, 1236.
Witty, 1248.
Lake (*Lewis & Pratt*), 1257.
Eagles (*Bergehausen, Philippe & Kiesling*), 1263.
Ducomet (*Legris*), 1272.
Fenby, 1276.
Coddington (*Gally*), 1319.
Brookes (*Farjon*), 1355.
Marshall, 1357.
Hamel, 1392.
Ashcroft, 1486.
Turner & Davies, 1512.
Holloway, 1561.
Rogers, 1573.
Cheesbrough (*Force & Judson*), 1600.
Walker, 1653.
Timmis, 1696.
Newton (*Beard*), 1706.
Lodge, 1744.
Rae, 1745.
Cropper (*Hopson & Allen*), 1757.
Crévissier & Lecamp, 1775.
Weston, 1776.
Johnson (*Lemaire & Sonnois*), 1791.
Hulme, 1794.
Lake (*Jebb*), 1889.
Palmer, 1897.
Brewer (*Lowden*), 1924.
Tongue (*Favier*) 1946.
Fletcher, 1949.
Johnson (*Enault & Co.*), 1951.
White, 1978.
Lake (*Smith*), 2065.
Lagrange, 2094.
Lake (*Aiken & Swett*), 2099.
Tongue (*Hogel & Bigelow*), 2115.
Heath, Evens & Heath, jun., 2125.
Levey (*Levey*), 2235.
Clark (*Blanchard*), 2265.
Bennett & Watt, 2276.
Russ, 2320.
Readett, 2346.
Nussey & Leachman, 2370.
Pinches, 2409.
Church, 2469.
Thornton, 2499.
Carwood, 2511.
Plessner, 2525.
Tongue (*Gardère, jun.*), 2536.
Rack, 2675.
Lake (*Laughland*), 2734.
Hooper, 2749.
Mason, 2780.
Stone, 2790.
Mason, 2842.
Courtenay, 2848.
Hodkinson & Clarke, 2884.
Davies (*Atkinson*), 2902.
Boynton, 2924.
Carwood, 2935.
McComb (*Cook*), 2942.
Mallet & Scholefield, 2952.
Brakell, 2956.
Danks, 2971.
Clayton, Clayton, jun. & Howlett, 2975.
Perkins, 2997.
Huggett & Huggett, 3037.
Maccallum 3040.
Johnson & Shanks, 3074.
Lake (*Hyatt & Hyatt*), 3101.
Anderson, 3110.
Goss, 3129.
Ford, 3131.
Cooper, 3160.
Alison, 3163.
Joyce, 3170.
Brookes (*Heusser*), 3181.
Perry, 3216.
Muschamp, 3218.
Cooper, 3232.
Clark, 3346.
Glazier, 3278.
Law & Law, 3283.
Parnacott, 3292.

**Presses, &c.—*cont.***
Kiesling, 3302.
Turney, 3305.
Rae, 3306.
Ibbetson, 3312.
Shanks, 3316.
Mills (*Post*), 3318.
Clark (*Deiss*), 3323.
Pelly (*Von Horn*), 3330
Banks, 3362.
Clark (*Dederick*), 3398.
West & West, 3402.
Norton, 3443.
Morgan, 3460.
Hemingway, 3465.
De Latouche, 3468.
Birch, 3503.
Jenner, 3505.
Haseltine (*Boomer*), 3510.
Mac Donald & Calverley, 3537.
Keirby, 3558.
Clark (*Ford*), 3572.
Kay, 3602.
Heath, Evens & Heath, jun., 3644.
Mendel, 3747.
Gedge (*De Kercado*), 3766.
Rendel, 3826.
Hughes (*Mallett Manufg. Co.*), 3832.
Duncan & Wilson (*Lauder*), 3834.
Neville, 3862.
Clark (*Bulmer & Sheppard*), 3935.
Venman & Warne, 3944.
Cornish & Strange, 3960.

**Pressure of fluids (regulating the).** *See* "Valves."

**Prickers used in blasting or mining:**
Osborn, 3929.

**Printing colours.** *See* "Dyes."

**Printing earthenware, porcelain and glass:**
Hughes (*Wilbaux*), 2833.
Hunt (*Wells & Zell*), 2915.

**Printing floor cloths:**
Hulme & Hulme, 372.
Hulme, 1794.
Downing, 1975.
Neill, 3827.

**Printing gutta-percha:**
Young, 1912.

**Printing imitation leather:**
Grosvenor, 3467.

**Printing lozenges.** *See* "Confectionery."

**Printing metals:**
Cates & Swindlehurst, 1557.
Young, 1912.
Barnley, 2467.
Hughes (*Wilbaux*), 2833.
Hunt (*Wells & Zell*), 2915.

**Printing or ornamenting book covers, &c.:**
Birdsall, 382.
Carwood, 2935.

**Printing paper; composing and distributing type:**
Newton (*Hoe*), 45.
Cunningham, 55.
Edwards, 73.
Lake (*Campbell*), 169.
Bayly, 319.
McDonald, 352.
Nichol & Eckersley, 455.
Marsden, 499.
Newton (*Hoe*), 545.
Hattersley, 552.
Wright, Broom & Bruce, 654.
Lake (*Paige & Reynolds*), 706.
Holten (*Hansen & Jürgensen*), 823.
Garey, 826.
Middleton, 945.

**Printing paper, &c.—*cont.***
Wolstenholme, 951.
Greene, 1056.
Fraser, 1060.
Pugin, 1092.
Newton (*Hoe*), 1109.
McKenzie, 1113.
Heyer, 1204.
Coddington (*Gally*), 1319.
Slater, 1395.
Wilbaux, 1406.
Briggs, 1429.
Cates & Swindlehurst, 1557.
Houghton, 1597.
Dawson & Dawson, 1626.
Ollard & Barrow (*Gottsberger & Tappin*), 1647.
Cope & Barrett, 1659.
Hincheliff, 1705.
Morris, 1728.
Cropper (*Hopson & Allen*), 1757.
Newton (*Johnson*), 1780.
Unwin & Ovens, 1839.
Young, 1912.
Macrone & McKenzie, 1916.
Hodges, 1965.
Clark (*Marinoni*), 2041.
Lagrange, 2094.
De Lara & De Salomos, 2107.
Lake (*Westcott Type-setting Co.*), 2111.
Wade, 2124.
Newsum, 2139.
Timiriazeff, 2161.
Bartlett, 2215.
Levey (*Levey*), 2235.
Mac Donnell, 2255.
Hughes (*Parker*), 2325.
De Lara, 2330.
Cail, 2458.
Gally, 2481.
Carwood, 2511.
Lochhead, 2518.
Newton (*Hoe*), 2561.
Lake (*Sperry*), 2563.
Henderson, 2689.
Clay, jun., 2716.
Bebro, 2718.
Heinemann & Müller, 2768.
Hughes (*Wilbaux*), 2833.
Courtenay, 2848.
Kastenbein, 2864.
Johnson & Shanks, 3074.
Conisbee & Smale, 3111.
Ford, 3131.
Parker, 3217.
Davis & Pardoe, 3248.
Foster, 3435.
Fraser, 3461.
Mac Donald & Calverley, 3537.
Young, 3548.
Clark (*Ford*), 3572.
Cunningham, 3632.
Woodbury, 3654.
Servante, jun., 3720.
Sprague, 3810.
Green, 3814.
Duncan & Wilson (*Lauder*), 3834.
Noad, 3839.
Wade, 3872.
Venman & Warne, 3944.
Johnson (*Gauduin, Mignon & Rouart*), 3970.

**Printing stone:**
Cunningham, 3632.

**Printing telegraphs.** *See* "Telegraphic printing."

**Printing wood:**
Hughes (*Wilbaux*), 2833.
Cunningham, 3632.

**Printing woven and other fabrics and yarns:**
Lloyd, 224.
Gatty, 561.
Lake (*Guichard & Dupont*), 962.
Ormerod & Speirs, 1006.
Lloyd & Green, 1084.
Clark (*Bastaert*), 1245.
Gatty, 1312.
Denne & Hentschel, 1347.

**Printing fabrics, &c.—*cont.***
Wilbaux, 1406.
Downing, 1975.
Thom & Stenhouse, 2186.
Dreyfus, 2276.
Thorpe, 2427.
Denne & Hentschel, 2429.
Michea, 2786.
Michea, 2787.
Tongue (*Féron*), 2819.
Wilkinson, jun., Fillingham & Pardoe, 2961.
Chiffray, 3545.
Wilkinson, jun., Fillingham, Pardoe & Glover, 3597.
Fillingham & Pardoe, 3669.

**Projectiles.** *See* "Shot."

**Propeller blades (freeing from weeds):**
Hollick, 1672.

**Propelling carriages; locomotion on land:**
Roberts, 696.
Hawker, 1177.
Lake (*Baxter*), 1244.
Hughes & Spooner, 1315.
Hammant, 1338.
Macneill, 1353.
Imray (*Brockmann & O'Byas*), 1439.
Ducros (*Robert*), 1631.
Hunt (*Rebour*), 1711.
Holt, 1725.
Rieber, 1813.
Taylor, 1832.
Downes, 2066.
Lake (*Silver*), 2185.
Randolph & Harvey, 2407.
Hamilton, 2685.
Hughes, 2832.
Davies, 3012.
Stanley, 3172.
Lake (*Mekarski*), 3338.
Vagnolini, 3806.
Holt, 3869.
Zysel, 3903.

**Propelling machinery (feed mechanism):**
Morton, 96.
Allerton, 114.
Walker (*Sugden*), 166.
Hughes (*Bates, Baker & Ferguson*), 179.
Ennor, 271.
Glasspool (*Glasspool*), 276.
Barthelmes, 291.
Johnson (*Lawrence*), 339.
Clark (*Sheffield & Mellor*), 399.
Stockwell (*Howe Machine Co.*), 421.
Notara, 439.
Lake (*Warth & Jobbins*), 536.
Weir, 580.
Granville, 605.
Carson & Toone, 665.
Stephens, 677.
Bradley, Waring & Waring, 678.
Crighton, Messrs., 803.
Lake (*Andrews, Clague & Randell*), 855.
Lake (*Wood*), 864.
Little & Eastwood, 904.
Evans, 937.
Robertson, 942.
Middleton, 945.
Morgan-Brown (*Fuller*), 959.
Johnson (*Goodyear, jun.*), 996.
Saxby & Winnington, 1037.
Lake (*Muir*), 1112.
Tongue, 1114.
Stephens & Harvey, 1124.
Mills (*Sinclair & Lange*), 1130.
Smyth, 1131.
King, 1148.
Crighton, 1152.
Graham, 1161.
Lake (*Richardson, Hacker & Blake*) 1175.
Richardson & Fidler, 1230.
Vick & Cooke, 1242.
Coddington (*Gally*), 1319.
Lake (*Ramsdell & Crane*), 1361.

Propelling machinery, &c.—*cont.*

Mawhinney (*Wiggin*), 1406.
Laidlaw & Fairgrieve, 1491.
Haycraft, 1554.
Jackson & Jackson, 1601.
Corbett, 1630.
Newton (*Harrington*), 1751.
Garey, 1812.
Clark (*Pollock*), 1934.
Fletcher, 1949.
Chenhall, 1992.
Le Gros (*Silva*), 2008.
Clark (*Marinoni*), 2041.
Crofts & Dawson, 2047.
Lake (*Wardwell, jun.*), 2200.
Mills (*Heyl & Brehmer*), 2291.
Towle (*Pratt*), 2305.
Whittemore (*Landfear*), 2311.
Macfarlane & Macfarlane, 2384.
Johnson (*Wilson Sewing Machine Co.*), 2441.
Morgan-Brown (*Dodge*), 2464.
Clark (*Chaufourier*), 2478.
Bonneville (*Warth & Jobbins*), 2517.
Harrison, 2531.
Symons, 2567.
Clements, 2636.
Rushton & Macqueen, 2737.
Lake (*Wood*), 2781.
Turner & Pridmore, 2905.
Gedge (*Cornély*), 2922.
Dickson, 2995.
Johnson & Shanks, 3074.
Milward, 3227.
Andrews, 3245.
Foster, 3435.
Appleton, 3476.
Haseltine (*Coles & Coles*), 3568.
Cornforth & Dangerfield, 3619.
Hughes (*Mallett Manufg. Co.*) 3832.
Mitchell & Jordinson, 3891.

Propelling machinery (gauges, guides and traversers):

Newton (*Singer Machine Co.*), 489.
Lake (*Warth & Jobbins*), 536.
Walton & Fallows, 1008.
Ellis, 1360.
Lomax, Lomax, Bradbury & Chadwick, 1370.
Stubbs, 1790.
Unwin & Ovens, 1839.
McLaren, 2021.
Benson (*Howes, Babcock, Babcock & Bovell*), 2192.
Whittemore (*Landfear*), 2311.
Bonneville (*Warth & Jobbins*), 2517.
Harrison (*Hoyer*), 2530.
Boeklen, 2803.
Lake (*Grosfeld, Bennett & Carman*), 2818.
Ransome, 2894.
Haseltine (*Shedd*), 2904.
Johnson (*Magnier, Pouilly, Brunet et Cie. & Prevost*), 3196.
Newall & Barker, 3336.
Quadling & May, 3559.
Henderson (*Demailly*), 3820.
Haseltine (*Morrill*), 3844.
Wade, 3872.

Propelling or driving machinery; transmitting power and motion:

Newton (*Hoe*), 45.
Lindsay, 101.
Paraire, 126.
Stokes & Stokes, 156.
Hughes (*Bates, Baker & Ferguson*), 179.
Smyth, 187.
Whittingham, 215.
Newton (*Closson*), 274.
Baker, 287.
Carter, 328.
Baumann, 389.
Clark (*Edge*), 414.
Harfield, 483.
Lawson & Fitton, 568.
Hanna, 637.
Grindrod & Worthington, 640.
Wright, Broom & Bruce, 654.
Newton (*Andrews*), 676.
Lancaster & Bullough, 683.
Lake (*Mot & Weaver*), 734.

Propelling machinery, &c.—*cont.*

Gibson & Gibson, 753.
Kaulbach, 784.
Collinge, 785.
Crighton, Messrs., 806.
Little, 850.
Benson, 863.
Hughes (*Hendryx & Webster*), 869.
Barlow (*Shinn*), 871.
Newton (*Fryer*), 875.
Pickard, 884.
Reynolds, 1001.
Tidcombe, jun., 1007.
Bousfield (*Herrick*), 1016.
Saxby & Winnington, 1037.
Cullen, 1072.
Stephens & Williams, 1194.
Hunt, 1199.
Clark (*Lewis*), 1210.
Coddington (*Gally*), 1319.
Richardson, 1488.
Corbett, 1630.
Raymond, 1660.
Bélicard, 1674.
Robertson, 1675.
Lake (*Proctor & Osgood*), 1677.
Hall & Hobson, 1701.
Hunt (*Rebour*), 1711.
Gedge (*Petit-Toulouse*), 1737.
Robertson, Orchar, Muir & McIlwham, 1867.
Fenno & Howe, 1871.
Salt, 1901.
Brewer (*Lowden*), 1924.
Lowry, 1966.
Soul (*Neuerberg*), 1980.
Chenhall, 1992.
Le Gros (*Silva*), 2008.
McLaren, 2021.
Clark, 2031.
Mathews (*Hancock*), 2051.
Barry, 2061.
Copland, 2141.
Linney, 2162.
Vivian & Mackenzie, 2217.
Levey (*Levey*), 2235.
Mac Leod, 2299.
Greig & Gillott, 2302.
Richardson, 2309.
Michelet, 2323.
Berry & Berry, 2345.
Hornsby, Phillips & Innocent, 2364.
Rushton & Tonge, 2382.
Johnson (*Wilson Sewing Machine Co.*), 2441.
Barlow (*Davies*), 2457.
Clark (*Chaufourier*), 2478.
Haseltine (*Stewart*), 2488.
Rostron, 2490.
Weston, 2494.
Harfield, 2512.
Mulholland, 2552.
Newton (*Hoe*), 2561.
Symons, 2567.
Millward (*Fishburn & Fishburn*), 2589.
Newton (*Motiron*), 2603.
Hunter & McCloy, 2661.
Hughes (*Stever, Boughton & Newton*), 2688.
Rushton & Macqueen, 2737.
Hooper, 2749.
Newton (*Whitehill*), 2759.
Rippin & Rippin, 2775.
Keighley, 2776.
McLaurin, 2788.
Rydill, 2886.
Cox, 2963.
Rowe, 2969.
Dickson, 2995.
Davies, 3012.
Smith & Lewty, 3018.
Elce & Arundel, 3025.
Taylor & Duckers, 3036.
Coleby, 3070.
Fairlie, 3103.
Booth, 3106.
Robertson, 3134.
Newton (*Whitehill*), 3142.
Johnson (*Magnier, Pouilly, Brunet et Cie. & Prevost*), 3196.
Andrews, 3245.
Blakey, 3267.
Wilke, 3301.
Lake (*Mekarski*), 3338.

Propelling machinery, &c.—*cont.*

Brimelow, 3353.
Towle (*Dodge & Messrs. Welch*) 3373.
Buchanan, jun., 3376.
Lyall, 3377.
Dockray, 3469.
Appleton, 3476.
Haseltine (*Manson*), 3601.
Hamilton, 3704.
Hamilton, 3756.
Lockman, 3782.
Henderson (*Demailly*), 3820.
Hughes (*Mallett Manufg. Co.*), 3832
Holt, 3869.
Hughes (*Mallett Manufg. Co.*). 3920.

Propelling ships; locomotion on water:

Pieper, 67.
Barker, 84.
Aston, 116.
Pieper, 153.
Leigh, 205.
Saunders, 278.
Clark (*Hédiard*), 436.
Clark (*Condell*), 437.
Hodgson, 447.
Allingham, 452.
Henderson, 514.
Wright, Broom & Bruce, 654.
Scott, 658.
Lake (*Mot & Weaver*), 734.
Rice, 861.
Ashbury (*Hemje*), 974.
Pembery, 988.
Betteley, 1096.
Christopher & Lackersteen, 1143.
Griffiths, 1164.
Clark (*Larmanjat*), 1246.
Lyttle, 1321.
Hughes, 1433.
Whinyates, 1490.
Connelly, 1581.
Lake (*Bruen*), 1584.
Burke, 1909.
Kay, 1994.
Barker, 2071.
Warneck, 2177.
Vivian & Mackenzie, 2217.
Haseltine (*Dodge*), 2397.
Johnson (*Brand*), 2433.
Radcliffe, 2526.
Clark (*De Moriès*), 2785.
Henry (*Bellotti & Petvini*), 2794.
Buchanan, 2957.
Davies, 3012.
Atkin, 3031.
Varela, 3097.
Boddy & Pickering, 3618.
Vacherot, 3707.
Davis, 3751.
Vagnolini, 3806.
Defty, 3842.
Smyth, 3857.
Vacherot, 3899.

Pulleys and pulley blocks:

Pieper, 67.
Williamson & Williamson, 407.
Low, 530.
Wright, Broom & Bruce, 654.
Budenberg (*Schäffer & Budenberg*) 860.
Reynolds, 1001.
Coddington (*Gally*), 1319.
Hodgson, 1719.
Weston, 1776.
Bretherick, 1792.
Lowry, 1966.
Ward, 2040.
Edwards, 2259.
Wrightson, 2333.
Murdoch (*Bède & Co.*), 2908.
Fisher, 2976.
Wilson, 2977.
Archer, jun., 3013.
Moore, 3222.
Binns, 3238.
Fleming & Milner, 3337.
Brimelow, 3353.
Clark (*Ritchel & Allen*), 3399.
Hamilton, 3738.

Pulp for making paper. *See* "Paper."

Pulping peat. *See* "Peat."

Pumps; raising and pumping water and other liquids:
- Fish, 6.
- Benson (*Cope & Maxwell*), 104.
- Lake (*Allen*), 163.
- Hanscom, 181.
- Gaskell, 190.
- Higginson, 202.
- Geneste, 241.
- Burr (*Pratt*), 253.
- Ennor, 271.
- Baumann, 389.
- Fletcher, 549.
- Church, 563.
- Walker, 613.
- Smith, 624.
- Wright, Broom & Bruce, 654.
- Frei & Kember, 686.
- Avery, 714.
- Gray, 721.
- Brown, 874.
- Holmes, 923.
- Wolstenholme, 924.
- Dunn, 939.
- Gedge (*Piau*), 953.
- Manent, 963.
- Wright, 1017.
- Robins, 1154.
- Kay & Kay, 1173.
- Wilson, 1174.
- Teal, 1190.
- Clark (*Lewis*), 1210.
- Paget, 1219.
- Fielding, 1316.
- Lake (*John*), 1332.
- Arnold, 1404.
- Jensen (*Steinbrenner*), 1474.
- Newton (*Dod*), 1658.
- Robertson, 1675.
- Carey, 1687.
- Sullivan, 1689.
- Colby, 1727.
- Clark (*Reynolds*), 1746.
- Clark (*Falcimagne*), 1748.
- Searle, 1778.
- Lake (*Harris*), 1783.
- Sacré, 1805.
- Atkins, 1898.
- Sagar, 1900.
- Parker & Robson, 1947.
- Kirk, 1952.
- Robertson (*Robertson*), 1962.
- King, 1990.
- Baker, 1996.
- Tonkin, 2045.
- Simpson & Hurd, 2106.
- Warneck, 2177.
- Lake (*Harris*), 2188.
- Woore & Watt, 2257.
- Morgan-Brown (*Houghton*), 2268.
- Friedmann, 2271.
- Mills (*Bennett*), 2283.
- André, 2312.
- Gedge (*Rives*), 2324.
- Nussey & Leachman, 2370.
- Church, 2469.
- Reynolds, 2696.
- Hooper, 2749.
- Hill, 2839.
- Hall, 2895.
- Davies, 3012.
- Trémaux, 3068.
- Varela, 3097.
- Robertson, 3134.
- Davey, 3208.
- Picking & Hopkins, 3236.
- Reynolds, 3264.
- Prince (*Schlamp*), 3332.
- Alley, 3342.
- Murray, 3384.
- Holman, 3423.
- Furness (*Furness*), 3452.
- Baumann, 3509.
- Hallam, 3539.
- Keirby, 3558.
- Newton (*Dod*), 3588.
- Kay, 3602.
- Selden, 3611.
- Benson (*Cope & Maxwell*), 3617.
- Robertson, 3665.

Pumps, &c.—*cont.*
- Tangye, 3724.
- Louche, 3752.
- Allan, 3761.
- Hamit, 3764.
- Gedge (*De Kercado*), 3766.
- Edwards, 3795.
- Bailey & Grindrod, 3808.
- Haseltine (*Craven*), 3843.
- Kirk, 3911.
- Williamson & Walker, 3912.

Punching metals. *See* "Boring."

Punching or perforating paper. *See* "Perforating."

Punching or piercing leather, &c.
- Tullis, 8.
- Clark (*Sheffield & Mellor*), 399.
- McKenzie, 1113.
- Mawhinney (*Wiggin*), 1403.
- Holloway, 1561.
- Horsey, 1874.

Purifying water. *See* "Filtering."

Purses; purse-gloves:
- Oldroyd, 364.
- Smith, 759.
- Macintosh & Boggett, 2947.
- James, 3934.

Pyro-ligneous products:
- Munro, 938.

Pyrometers:
- Bailey, 949.
- Casartelli, 984.

Pyropneumatic engines:
- Plessner, 3525.

Pyroxyline:
- Lake (*Hyatt & Hyatt*), 3101.

Q.

Quarrying. *See* "Mining."

Quays. *See* "Harbours."

R.

Racks for bottles. *See* "Bottle racks."

Rafts:
- De Froideville, 3190.

Rags and waste; rag engines:
- Oldroyd & Oldroyd, jun., 167.
- Gibbs & Borwick, 314.
- Lake (*Taylor & Brightman*), 968.
- Don & Wright, 970.
- Foxwell, 1063.
- Mills (*Hutchinson*), 1140.
- Turner & Davies, 1512.
- Salt, 1901.
- White, 1978.
- Noble, 2006.
- Dixon, 2394.
- Ingham, 2475.
- Gray (*Hall*), 2772.
- Duffaud & Frear, 2797.
- Hampson, 2938.
- Morgan-Brown (*Dunham*), 3213.
- Glazier, 3278.
- Mills (*Post*), 3318.
- Haseltine (*People*), 3956.

Railings:
- Hulse, 195.
- Lewis, 876.
- Anderson, 2655.
- Tuddenham, 3762.

Railway breaks. *See* "Breaks for carriages."

Railway buffers:
- Lake (*John*), 1332.
- Lindblad, 1519.
- Lake (*Kibbe*), 3689.

Railway carriage lamps. *See* "Lamps."

Railway carriages:
- Galloway, 14.
- Edwards, 374.
- Titley, 586.
- Woods, 430.
- Edwards (*Thornton & Buckland*), 495.
- Curtis, 746.
- Lake (*Emery, Doyen & Sparrow*) 770.
- Brewer (*Frye*), 1011.
- Fairlie, 1067.
- Doty & Gardner, 1233.
- Clark (*Larmanjat*), 1246.
- Lake (*John*), 1332.
- Ellis, 1461.
- Weibel, 1462.
- Lloyd, 1482.
- Imray (*Brockmann & O'Ryan*), 169.
- Muratori, 1588.
- Smith, 1602.
- Johnson (*Harrison, jun.*), 178.
- Ballardie, 1774.
- Zamoyski & Jackson, 1782.
- Heald, jun., 1784.
- Lyttle, 1811.
- Lynch, 1861.
- Walton, 1972.
- Furness, 2009.
- Smith, 2023.
- Adams, 2076.
- Wilkes, 2117.
- Hutchinson, 2169.
- Robinson, 2165.
- Smith, 2196.
- Lyttle, 2212.
- Fox & Gurden, 2218.
- Atkins, 2232.
- Sabberton, 2256.
- Bagster, 2273.
- Haseltine (*Sanderson*), 2435.
- Haseltine (*Sanderson*), 2463.
- Purkis & Leesware, 2574.
- Pellatt, 2631.
- Curtis, 2699.
- Kienast, 2721.
- Mitchell & Newton, 2767.
- Brown, 2866.
- Mann, 2996.
- Large, 3079.
- Langham, jun., & Owen, 3121.
- Bidpath & Sherring, 3167.
- White, 3394.
- Zamoyski & Jackson, 3453.
- Ashbury, 3563.
- Spencer & Scott, 3694.
- Clark, 3954.
- Gomperts, 3965.
- Lees, 3966.

Railway carriages (heating). *See* "Heating carriages."

Railway ferries; transferring trains to and from floating vessels:
- Kochs, 107.
- Page, 136.
- Leigh, 205.
- Bois, 1703.
- Kochs, 1865.

Railway rolling stock (cleaning or washing):
- Earl of Caithness 43.

**Railway ticket cases.** *See* "Stamps."

**Railway turntables:**
Siemens (*Siemens*), 2923.

**Railway wheels.** *See* "Wheels for carriages."

**Railways across estuaries, rivers and other waters:**
Imray (*Brockmann & O'Ryan*), 1489.

**Railways (atmospheric):**
Davies, 3012.
Eyland & Warren, 3112.

**Railways (coupling and joining carriages):**
Taylor & Larkin, 533.
Lake (*Horack*), 1576.
Hough, 1712.
Adams, 2076.
Stableford, 2732.
Brimelow & Sutherst, 3357.
Morton, 3496.
Lake (*Kibbe*), 3689.
Huddart, 3879.

**Railways (endless):**
Lyttle, 867.
Brewer (*Frye*), 1011.

**Railways (moving carriages and trucks):**
Chase, 612.

**Railways (overhead):**
Eyland & Warren, 3112.

**Railways (permanent way, rails, chairs and sleepers):**
Spence (*Oakley*), 138.
Edwards, 297.
Johnson (*Nee*), 325.
Ireland & Ireland, jun. (*Pink*), 429.
Greener & Sarney, 438.
Mills (*Timby*), 585.
Minns, 627.
Lake (*Yost*), 679.
Curtis, 746.
Gregg & Evans, 771.
Owen, 886.
Johnson (*Vitali*), 948.
Gowans, 978.
Lake (*Chisholm*), 1002.
Brewer (*Frye*), 1011.
Webster, 1027.
Hurd & Firth, 1036.
Croskey & Remington, 1061.
Fairlie, 1087.
Lake (*Caumon* (*Absterdam*)), 1135.
Pochet & Lemoine, 1232.
Clark (*Larmanjat*), 1246.
Fish (*Mallory*), 1308.
Rogers, 1573.
Boone & Herman, 1590.
Lake (*Woodbury*), 1618.
Müller (*Noot*), 1629.
Lake (*Tripler*), 1646.
Doubelt (*Lacaff*), 1649.
Lyttle, 1811.
Lyttle, 1814.
Arthur, 1884.
Smith, 2028.
Lake (*Smith*), 2065.
Hutchinson, 2160.
Chapin, 2415.
Emmens, 2451.
Lake (*Pope*), 2461.
Lyttle, 2463.
Leslie, 2606.
Midelton, 2656.
Curtis, 2699.
Johnson (*Clarke, Bonzano & Griffen*), 2701.
Owen, 2815.
Hughes (*Krochmann*), 2895.
Langham, jun., & Owen, 3121.
Bourne, 3471.
Clark (*Staughton*), 3630.
Gedge (*Innard*), 3659.
Morgan-Brown (*Beisson*), 3873.

**Railways (points and switches):**
Reilly, 918.
Barlow, 1147.
Imray, 1354.
Easterbrook, 1606.
Burleigh, 1891.
Ford, 2673.
Siemens (*Siemens*), 2923.
Gastineau, 2983.
Burn, jun., & Howard, 3592.

**Railways (portable):**
Marchant, 2068.

**Railways (ship):**
Hutchinson, 2160.
Sébillot, 2657.

**Railways (subterranean):**
Macneill, 1353.

**Raising and lowering ships or vessels:**
Wright, Broom & Bruce, 654.
Gedge (*Tourene*), 1120.
Duer, 1615.
King, 1764.
Turnbull, 2013.
Pullar, 2242.
Sébillot, 2657.
Browne (*Knapp*), 3686.

**Raising weights.** *See* "Hoists."

**Raising water.** *See* "Pumps."

**Rakes.** *See* "Tools."

**Rakes (horse).** *See* "Ploughing."

**Rams.** *See* "Ships of war."

**Rasps.** *See* "Files."

**Readers for the jacquard loom.** *See* "Weaving."

**Reading cases for vehicles while in motion:**
Helmore, 1824.

**Reading desks.** *See* "Furniture."

**Reamers:**
Bousfield (*Heaton*), 1591.

**Reaping; mowing; making hay:**
Lake (*Sprague*), 421.
Lake (*Miller*), 481.
Haseltine (*Osborne*), 537.
Lake (*Passmore*), 538.
Pidgeon & Manwaring, 629.
Fitzpatrick, 662.
Collinge, 785.
Hicken, 1065.
McGregor, 1187.
Griffin (*Wood*), 1300.
Pidgeon & Manwaring, 1623.
Peile, 1763.
Johnson (*Albaret*), 1826.
Lake (*Johnston*), 1837.
Lake (*Johnston*), 1838.
Ogle, 1843.
Brown, 1858.
Campion, 2114.
Hornsby, Phillips & Innocent, 2364.
Drummond, 2368.
Hughes, 2468.
Bamlett, 2485.
Hayes, 2564.
Griffin (*Wood*), 2607.
Beare, 2608.
Hayes, 2669.
Newton (*Barlow & Walker*), 2700.
Lake (*Bruen*), 2836.
Riches, 2980.
Pidgeon & Manwaring, 3030.
Bamlett, 3035.
Hornsby, Phillips & Innocent, 3289.
Lake (*Nicholson*), 3392.
Osborn, 3515.

**Reaping, &c.—*cont.***
Ogle, 3560.
Hughes, 3595.
Peile, 3633.
Booth, 3675.
Nicholson, 3730.
Dodd & Peel, 3877.
Wood, 3962.

**Reefing sails.** *See* "Ships' sails."

**Reeling yarns.** *See* "Winding."

**Reflectors:**
Lake (*Mercer*), 120.
Keeling, 150.
Phillips, 384.
Defries, 516.
Tandy & Dryden, 648.
Herrmann & Laurent, 1041.
Trotman, 1411.
Blackwood, 1440.
Allan (*Riddell*), 1475.
Chappuis, 1899.
Woods & Clark, 1923.
Cordier, 2302.
Green, 2560.
Woodhouse, 2602.
Tandy & Stroudley, 3540.

**Refreshment cases.** *See* "Luncheon, &c."

**Refrigerating; cooling; making ice; ice safes:**
Dufrené (*Tellier*), 228.
Walker, 272.
Johnson (*Gravenstine & Taylor*), 420.
Soul (*Haenlein*), 821.
Pye-Smith & Ribbans, 831.
Johnson (*Tingley*), 914.
Henderson (*Chapusot*), 926.
Wright & Don, 970.
Barlow (*Naegeli*), 1203.
Edwards, 1379.
Fox, 1427.
Dann (*Féron*), 1699.
Johnson (*Lemaire & Sonnois*), 1791.
Abate, 1853.
Purkis, 1935.
Jolliffe, 1979.
Lake (*Martin & Beath*), 2210.
Phillips, 2221.
Russ, 2320.
Moore, 2351.
Sutcliffe, 2386.
Williams, 2395.
Hunt (*Bray*), 2406.
Foster, 2551.
Hunt (*Riley*), 2761.
Hughes (*Schultze*), 2889.
Steel, 3041.
Ash, 3307.
Johnson (*Mignon & Rouart*), 3422.
Ivory, 3682.
Hill, 3732.

**Registering, indicating and marking apparatus:**
Bañolas-Arnau, 198.
Taylor, 240.
Punshon, 347.
Lake (*Warth & Jobbins*), 536.
Strauss (*Harris*), 745.
Graham, jun., 807.
Cardozo & Taylor, 866.
Baxter, 893.
Bailey, 949.
Warbrick & Clegg, 999.
Hunt (*Schole*), 1004.
Liddington, 1094.
Oppenheimer, 1253.
Longman & Alderman, 1402.
Conlong & Smith, 1717.
Russell & Sax, 1731.
Tabor, 1888.
Starr, 2079.
Wier, 2145.
Spagnoletti, 2240.
Ashlin & Clover, 2245.
Barbour, 2437.
Davey, 2462.
Goodall, 2654.

**Registering, &c.—*cont.***
Robinson, 2663.
Walker, 2723.
Wappenstein, 2810.
Whitehouse & Phillips, 3016.
Griffiths & Busby, 3089.
Bezer & Millar, 3114.
Sykes & Francis, 3448.
Bezer, 3565.
Bainbridge, 3817.

**Regulating tension of warps.** *See* "Weaving."

**Repairing roads.** *See* "Road making."

**Reservoirs.** *See* "Cisterns."

**Resin; resinous substances:**
Smith (*Du Motay*), 2.
Platt, 969.
Mills (*Hutchinson*), 1140.
Deiss, 2476.

**Respirators; supporting respiration in suffocating atmospheres:**
Pulvermacher, 809.
Imray (*Denayrouse*), 2142.
Barton, 2393.
Busby, 2557.
Pulvermacher, 2771.
Lowe, 2778.

**Retorts:**
Lake (*Muller & Eichelbrenner*), 200.
Porter & Lane, 588.
Somerville, 776.
Clark (*Floyd, Dieterich & Schüssler*), 901.
Webster, 1027.
Clark (*Rouillé*), 1032.
Bell, jun., & Bell, 1073.
Monckton, 1460.
Fearnley, 1461.
Porter & Porter, 1494.
Imray (*Blair*), 1589.
Clark (*Stanoliff & Floyd*), 1747.
Anderson & Buchanan, 1768.
Shanks, 1771.
Imray (*Blair*), 1795.
Smith & Willans, 1876.
Russ, 1964.
Payne, 2015.
Gorman, 2017.
Todd, 2035.
Rose, 2232.
Bousfield (*Wilson*), 2263.
Vincent, 2510.
Harrison (*Harrison Bros. & Co.*), 2532.
Robertson, 2586.
Ruck, 2711.
Fraser, 2779.
Porter, 2800.
Fisher, 2976.
Malam, 3180.
Hurd & Simpson, 3241.
King, 3375.
Hedley, Smith & Hedley, 3300.
Key, 3744.
Mann, 3897.
Williams, 3919.
Bousfield (*Scowden*), 3966.

**Reversing apparatus for machinery:**
Hannay, 230.
Smith & Coventry, 290.
Schüssler & Wagner, 333.
Griswold, 693.
Benson, 863.
Johnson, 929.
Rippin, 941.
Reynolds, 1001.
Smith, 1291.
Ransome, 1507.
Baker & Cox, 1551.
Holt, 1725.
Kirk, 1952.
Copland, 2141.
Melling, 2155.
De Negri, Herrmann & Guest, 2158.
Walker, 2296.

**Reversing apparatus, &c.—*cont.***
Vivian & Mackenzie, 2317.
Mills (*Bennett*), 2288.
Newton (*Farcot, Messrs., & Chateau*), 2635.
Ransome (*Richards*), 2674.
Follows, Bate & Edwards, 2949.
Fulton, 3361.
Davies, 3596.
Hamilton, 3729.
Urquhart & Lindsay, 3836.
Kirk, 3911.

**Rheometric regulators for gas-burners.** *See* "Gas-burners."

**Ribbon looms.** *See* "Weaving."

**Rick cloths.** *See* "Stacking."

**Rifling.** *See* "Boring."

**Ringing bells.** *See* "Bells."

**Rings:**
Darlow, 1334.
Clark (*Dubois*), 2219.

**River banks (protecting):**
Ashbury (*Hemje*), 974.

**Rivets.** *See* "Nails."

**Rivetting machines.** *See* "Metals (forging)."

**Road making and paving:**
Lyttle, 31.
Dyne & Dyne, 170.
Stone, 203.
Hotchkiss, 207.
Whittingham, 215.
Lake (*Hotchkiss*), 345.
Lake (*Hotchkiss*), 346.
Norton, 357.
Nussey, 367.
Touche, 488.
Williamson & Williamson, 497.
Chadwick, 539.
Johnson (*Robin & Malo*), 610.
Holden, 716.
Gregg & Evans, 771.
Thomas, 793.
Croskey, 966.
Norris, 1031.
Stone, 1115.
Norton, 1149.
Norton, 1151.
Clark (*Larmanjat*), 1218.
Lyttle, 1264.
Monckton, 1460.
Croskey, 1533.
Lake (*Luckenbach*), 1585.
Boone & Herman, 1590.
Tucker, 1669.
Kühn, 1840.
Maxwell, 1868.
Parlour, 2014.
Marsden, 2057.
Lake (*Smith*), 2065.
Hill, 2097.
Bradley & Speight, 2148.
Clark (*Simons*), 2187.
Bennett & Watt, 2276.
Jaynor, 2361.
Probert, 2398.
Emmens, 2451.
Barlow (*Davies*), 2457.
Stone, 2473.
Sebille, 2491.
Bird, 2558.
Fottrell, 2881.
Rogers, 3090.
Bodmer & Bodmer, 3557.
Garbutt, 3679.
Haseltine (*Morong*), 3750.
Prince (*Barthel, Capitaine & Holzmann*), 3886.
Samuelson, 3892.
Copland, 3925.

**Road steamers.** *See* "Traction-engines."

**Roads and pavements (cleansing):**
Dyne & Dyne, 170.
Wood, 212.
Sprague, 306.
Rosborough, 324.
Hughes (*Folkmann & Kölgen*), 639.
Wilson, 1472.
Brown, 1511.
Davies, 3012.
Rendall & Rendall, 3905.

**Rock drills.** *See* "Boring."

**Rockets:**
Johnson (*Ruggieri*), 674.
Hale, 3188.

**Rollers.** *See* "Cylinders."

**Rolling land.** *See* "Ploughing."

**Rolling metals.** *See* "Metals (rolling)."

**Roofing, roofs and domes:**
Hyatt, 25.
Lake (*McLeod*), 443.
Le Mesurier, 566.
Moore & Moore, 586.
Lake (*Cornell*), 960.
Spence (*Coutelier*), 1166.
Stone, 1115.
Norton, 1151.
Lyttle, 1264.
Lake (*Conger*), 1304.
Turner, 1396.
Tucker, 1669.
Lyttle, 1811.
Broughton, 2438.
Lake (*Bloodgood*), 2572.
Glasier, 3278.
Basford, 3285.
Tall, 3444.
Riley, 3453.
Lloyd, 3638.

**Ropes, cordage, twine, oakum and wire ropes:**
Fish & Wotherspoon, 7.
Lake (*Morris*), 162.
Walker, 331.
Browne (*Count of Montebello*), 510.
Vanel, 606.
Don & Wright, 970.
Duff, 1293.
Lake (*Alexander*), 1425.
Dickson, 1643.
Dupont, 1769.
Foster, jun., 2043.
Gedge (*Jourdeuil & Parisot*), 2322.
Dick & Dick, 2837.
Chapin, 2973.
Dickson, 2995.
Morgan-Brown (*Möller*), 3067.
Morgan-Brown (*Dunham*), 3213.
Binns, 3238.
Sang, 3455.
Defty, 3843.

**Roses or nozzles:**
Barraclough & Barraclough, 441.
Barton, jun., 755.
Pagot, 1219.
Körting, 1796.
Prosser, 1973.
Hargreaves & Robinson, 3053.
Hallam, 3539.

**Rotary spaders or diggers.** *See* "Digging."

**Roughing horses.** *See* "Horseshoes."

**Roving.** *See* "Spinning, twisting."

**Ruches.** *See* "Weaving carpets."

**Rudders.** *See* "Steering."

**Rugs; mats; travelling rugs:**
De Montoison, 12.
Newton (*Webster & Meserole*), 344.
Blundell, 353.
Wallis & Bradshaw, 594.
Clark (*Knowles*), 838.
Lake (*Stern*), 979.
Clews, 1269.
Norton, 1662.
De Montoison, 2001.
Clark (*Dubois*), 2219.
Gedge (*Jourdeuil & Parisot*), 2322.
Dixon, 2394.
Davidson, 2868.

**Rulers; ruling paper:**
Yule, 1950.
Johnson (*Bergner*), 2565.
Mackenzie, 2645.
Yule, 2814.
Mackay, 3047.
Richards (*Holman*), 3297.
Maurel, 3479.

**Rules:**
Bousfield (*Heaton*), 1591.

**Rum:**
Alleyne, 2930.

**Rymers.** *See* "Tools."

## S.

**Saccharometers:**
Nicholls, 3137.

**Sacks.** *See* "Bags."

**Saddle bags for carrying water:**
Chaine, 2466.

**Saddlery.** *See* "Harness."

**Safes:**
Cottam, 453.
Nickson, 542.
Nash, 663.
Fothergill & Rumble, 668.
Brolly (*Sullivan*), 881.
Lake (*Cauman (Absterdam)*), 1135.
Hobbs & Hart, 1611.
Elwell & Grove, 2048.
Lancaster, 2074.
Chambers, 2103.
Lochhead, 2518.
Gardner, 2953.
Riley, 3458.

**Safes (provision):**
Lake (*Chèradame, Le Dreux & Ourset*), 2053.
Ash, 3367.

**Sail cloth.** *See* "Ships' sails."

**Sail hanks.** *See* "Hanks."

**Salinometers:**
Nicholls, 3137.

**Salt (common):**
McDougall, 311.
Hamer, 630.
Benson (*Hayes*), 802.
Jensen (*Erichsen & Maardt*), 1122.
Parks, 1366.
Bull, 1845.
Cheesbrough (*Clough*), 2156.
Hargreaves & Robinson, 2596.
Pohl, 3116.
Parks, 3260.
Lyte (*Storck, Hentsch, Hentsch, Lutscher, Grininger & Decottignie*), 3685.
Williamson & Dale, 3939.

**Salts:**
Coffey, 64.
Gibbs & Borwick, 314.
Weldon, 359.
Clark (*Blanchard, Bang & Provost*), 388.

**Sample cases; sampling tools; securing samples of stuffs, &c.; transmitting samples by post:**
Ricketts, 1556.
Boullier, 1641.
Hart, 2306.
Powles, 3067.
Yule, 3124.

**Sand papers; sand papering machines.** *See* "Emery papers."

**Sanding match boxes.** *See* "Matches."

**Sandwich dishes.** *See* "Dishes."

**Sashes.** *See* "Windows."

**Satchels.** *See* "Bags."

**Saucepans; stew-pans; steamers; fish kettles; pots:**
Browne, 1543.
Huch, 2535.
Cox, 2583.
Camroux, 3950.

**Save-alls for candlesticks, &c.** *See* "Lamps."

**Saving from drowning.** *See* "Life buoys."

**Saving fuel.** *See* "Fuel."

**Saw dust and turnings (utilizing as fuel).** *See* "Fuel."

**Saws; saw frames:**
Last, 285.
Clark (*Boynton*), 635.
Bousfield (*Heaton*), 1591.
Cotter, 1756.
Caselton & Toogood, 1920.
Clark (*Martinier*), 2633.
Hamilton, 3756.
Newton & Cotter, 3783.

**Scarifiers.** *See* "Ploughing."

**Scarves.** *See* "Neck-ties."

**Scent and perfumes; perfuming:**
Doudney & Adams, 178.
Bending, 1299.
Thompson, 2195.
Tongue (*Givry*), 2519.
Robison, 2755.
Webb, 2770.

**School desks, furniture and partitions:**
Abbott, 614.
Blackburn, 645.
Lake (*Curtis*), 1499.
Stother & Milton, 1680.
Redmayne, 1894.
Castle, 1968.
Stones & Castles, 2007.
Hammer, 2978.
Moss, 2992.
Gaskell & Wright, 3201.
Redmayne, 3706.
Sidebotham, 3861.

**Scissors and shears:**
Foveaux, 74.
Holland, 378.
Smith, 395.
Newton (*Thompson*), 506.
Fitzpatrick, 662.
Mayer, 1582.
Bousfield (*Heaton*), 1591.

**Scissors and shears—*cont.***
Marsden, 1741.
Hunt (*Wehrlin*), 1903.
Willis, 2374.
Jackson, 2653.
Hodkinson & Clarke, 2884.
Pigall, 3551.

**Scotch bonnets.** *See* "Hats."

**Scouring needles.** *See* "Needles."

**Scrapers (path).** *See* "Tools."

**Screens or sieves.** *See* "Sifting."

**Screw gill machinery.** *See* "Spinning (carding)."

**Screws; screw drivers; screw-taps:**
Schlesinger (*Dixon*), 98.
Hughes (*Bates, Baker & Ferguson*), 179.
Dumbleton, 822.
Gillies, 873.
Webster, 1027.
Gedge (*Vigneau*), 1119.
Johnson (*Barret & Verdreau*), 1121.
Bain (*Law*), 1241.
Cazes, 1252.
Bousfield (*Heaton*), 1591.
Arthur, 1884.
Lake (*Bell*), 2130.
Blake, 2224.
Towle (*Pratt*), 2305.
Haseltine (*Goddard & Goddard*), 2537.
Boeklen, 2803.
Barlow (*Gatty*), 2834.
Mason, 2842.
Gedge (*Vigneau*), 3021.
Keats, 3123.
Barrow, 3199.
Laycock (*Carpenter*), 3226.
Edmeston, 3729.

**Scudding skins.** *See* "Leather."

**Sculpture; sculpturing:**
Lanteigne, 848.
Jaynor, 2361.
Glazier, 3278.
Smith, 3915.

**Scutching fibres.** *See* "Spinning (opening)."

**Seals for locks:**
Mills (*American Seal Lock Co.*), 252.

**Sea-sickness (preventing):**
Dicey, 151.
Joyce, 3170.
Marcus, 3567.
Kaulbach, 3584.
Cornish, 3661.
Allan, 3761.
Rydill, 3901.

**Seasoning wood.** *See* "Wood."

**Sea-walls.** *See* "Breakwaters."

**Sea-water (obtaining for baths, &c.):**
Lyttle, 2212.

**Sea-weed (treating):**
Sellars, 100.
Cunningham & Corbin, 361.
Sellars, 989.
Sonstadt, 1054.
Stanford, 2118.

**Sediment and incrustation (preventing).** *See* "Oxidation."

**Seed from raisins, &c. (removing):**
Lake (*Taylor & Holland*), 1575.

**Seed sowing.** *See* "Sowing."

**Seeds (mixing):**
Bartlett, 2354.

**Setting tires on wheels.** *See* "Wheels for carriages."

**Sewage (treating.)** *See* "Manure."

**Sewers.** *See* "Drains."

**Sewing and embroidering:**
Hughes, 15.
Lake (*Mercer*), 120.
Smyth, 187.
Barthelmes, 291.
Carter, 328.
Morrall, 398.
Clark (*Shaffield & Mellor*), 399.
Stockwell (*Howe Machine Co.*), 401.
Hamilton, 474.
Newton (*Singer Machine Co.*), 489.
Lake (*Mills & Taylor*), 500.
Campion, 534.
Weir, 580.
Hughes (*Baldwin*), 590.
Hanna, 637.
Bousfield (*House*), 710.
Browne (*Nörholm*), 749.
Gibson & Gibson, 753.
Palliser, 775.
Jackson, 814.
Lake (*Wood*), 864.
Pickard, 884.
Holmes, 923.
Robertson, 942.
Johnson (*Goodyear, jun.*), 996.
Baynes, 998.
Bousfield (*Herrick*), 1016.
Browne (*Berymann & Huttemeier*), 1052.
Lake (*Muir*), 1112.
Smyth, 1131.
Jackson, 1153.
Stockwell (*Howe Machine Co.*), 1191.
Condie, 1237.
Mayer & Deshayes, 1251.
Jackson, 1311.
Mackley, 1325.
Lomax, Lomax, Bradbury & Chadwick, 1370.
Johnson (*Mills & Taylor*), 1470.
Cottrill, 1502.
Gaspary, 1538.
Newton (*De Bisschop*), 1594.
Raymond, 1660.
Lake (*Proctor & Osgood*), 1677.
Blomfield, 1763.
Campion, 1818.
Brewer (*Lowden*), 1924.
Chamberlain, 1930.
Lake (*Johnston*), 1937.
Chenhall, 1992.
Barry, 2061.
Magaud, 2113.
Clark, 2176.
Lake (*Wardwell, jun.*), 2200.
Lake (*Harper*), 2237.
Laycock, 2288.
Norman, 2300.
Daft, 2411.
Rossiter, 2419.
Johnson (*Wilson Sewing Machine Co.*), 2441.
Palmer, Pickup & Carter, 2474.
Haseltine (*Stewart*), 2488.
Chamblant, 2522.
Harrison (*Hoyer*), 2530.
Harrison, 2531.
Symons, 2567.
Millward (*Fishburn & Fishburn*), 2589.
Cooper & Lowe, 2600.
Clements, 2636.
Morgan-Brown (*Ashe*), 2706.
Morgan-Brown (*Keith*), 2735.
Newton (*Whitehill*), 2759.
Lake (*Wood*), 2781.
Lake (*Grosfeld, Bennett & Carman*), 2818.
Lake (*Lincoln & Bayer*), 2831.
Murdoch (*Baudot*), 2837.
Davidson, 2868.
Henry (*Bourdin*), 2903.
Hughes (*Hotchkiss*), 2916.

**Sewing, &c.—*cont.***
Gedge (*Cornély*), 2922.
Haseltine (*Shedd*), 2994.
Wilson, 3053.
Newton (*Whitehill*), 3143.
Andrews, 3245.
Laycock & Shuttleworth, 3303.
Hillman, 3364.
Towle (*Dodge & Messrs. Welch*), 3373.
Appleton, 3476.
Dingwall, 3543.
Haseltine (*Coles & Coles*), 3583.
Haseltine (*Manson*), 3601.
Johnson (*Dodge*), 3619.
Kernaul, 3768.
Lockman, 3782.
Henderson (*Demailly*), 3820.
Haseltine (*Morrill*), 3844.
Ward, 3850.
Whitehall, 3855.
Scattergood, 3881.

**Shackles.** *See* "Chains."

**Shafts and shafting:**
Baker, 287.
Scott, 658.
Tannett, Scott, jun., Craven & Fox, 660.
Lake (*Croll, Barrett & Plush*), 909.
Robson, 947.
Webster, 1027.
Clarke, 1100.
Lake (*Caumon (Absterdam)*), 1135.
Lake (*Rueff*), 1553.
Rogers, 1573.
Zamoyski & Jackson, 1782.
Knott (*Speakman*), 2172.
Ford, 2673.
Boeklen, 2803.
Clark (*Wilson & Folk*), 2882.
Murdoch (*Bède & Co.*), 2908.
Clark (*Ritchel & Allen*), 3399.
Harrold, 3400.
Furness (*Furness*), 3452.
Zamoyski & Jackson, 3458.
Hadfield, 3524.
Hamilton, 3704.
Lake (*Faull*), 3722.
Hamilton, 3738.
Hughes (*Mallett Manufg. Co.*), 3832.

**Sharpening knives and cutting tools.** *See* "Grinding and surfacing."

**Shawls; shawl pins:**
Merrylees, 1921.
Macaulay, 2570.
Murdoch (*Baudot*), 2837.
Goss, 3129.

**Shearing animals:**
More & Norman, 139.
Holland, 378.
Smith, 395.
Fitzpatrick, 662.
Marsden, 1741.
Hunt (*Wehrlin*), 1903.
Willis, 2374.
Jackson, 2653.

**Shearing metals.** *See* "Cutting."

**Shears.** *See* "Hoists."

**Sheaths (morocco):**
Marie, 3335.

**Sheds (cattle).** *See* "Stables."

**Shell and other projectiles.** *See* "Shot."

**Shields:**
Muratori, 1588.

**Shingle or sand raising to form sea works:**
Manico, 1090.

**Ship and boat building, cleaning and repairing:**
Mayler, 20.
Spence, 56.
Clark, 70.
Cooke, 123.
Newell, 142.
Dicey, 151.
Stone, 203.
Leigh, 205.
Henderson, 514.
Wright, Broom & Bruce, 654.
Longsdon, 787.
Mackenzie, 980.
Betteley, 1096.
Stone, 1115.
Lake (*Caumon (Absterdam)*), 1135.
Griffiths, 1164.
Campbell, 1167.
Lyttle, 1264.
Johnson (*Inglis*), 1266.
Atkin, 1273.
Hirsch, 1305.
Lyttle, 1321.
Browne, 1419.
Lloyd, 1482.
Bedwell, 1517.
Ridsdale, 1524.
Poulson, 1548.
Muratori, 1588.
Duer, 1615.
Bois, 1703.
King, 1764.
Lyttle, 1811.
Kochs, 1865.
Campbell, 1883.
Newell, 1890.
Turnbull, 2013.
Allen, 2034.
Smith, 2196.
Lyttle, 2212.
Strachan (*Gibson*), 2799.
Bessemer, 2897.
Capel, 2933.
Buchanan, 2957.
Atkin, 3031.
Cameron & Smith, 3127.
Joyce, 3170.
Morgan-Brown (*Dunham*), 3213.
Glazier, 3278.
Lee & White, 3311.
Taylor, jun. (*Waterton*), 3335.
Johnson (*Jackson*), 3337.
White, 3394.
Ashbury, 3563.
Marcus, 3567.
Kaulbach, 3584.
Cornish, 3661.
Henry (*Ehrmann*), 3692.
Stapleton, 3753.
Allan, 3761.
Boyman, 3840.
Clark (*Reilly*), 3856.
Anderson, 3953.

**Ships and vessels (coaling):**
Morgan, 636.
Walker & Clarke, 3050.

**Ships' boats (lowering, raising and disengaging):**
Mills (*Cathcart, Ezekiel & Faulds*), 61.
Hill, 242.
Clark (*Quaritius*), 769.
Lake (*Mallory*), 830.
Robinson, 991.
Jones & Green, 1062.
Hill & Clark, 1193.
Johnson (*Douglas*), 1339.
Sweeting, 1367.
Fitzmaurice, 1866.
Stevens (*Wood*), 1932.
Kerridge, 2888.
O'Callaghan, 3454.
Johnson (*Douglas*), 3554.

**Ships' bottoms and hulls (coating, preserving and sheathing):**
Weeks, 141.
Smith, 634.
Lyttle, 1264.
Casbay, 2093.

**Ships' bottoms, &c.—*cont.***
Allen & Fitzgerald, 2208.
Hudson, Walker & Robson, 2348.
Lake (*Bloodgood*), 2572.
Henry (*Ehrmann*), 3692.

**Ships' cargoes (loading and unloading):**
Cooper (*Cooper*), 1289.
Bois, 1703.
Vogan, 2060.
Warneck, 2177.
McFarlane, 2516.
Jones, 2728.
Walker & Clarke, 3050.
Brown, 3816.

**Ships' cargoes (preserving):**
Anderson, 729.
Abate, 1853.
Alison, 3163.

**Ships (guarding and saving from strandings and wrecks):**
Ellson, 2075.

**Ships' masts and yards:**
Cameron, 570.
Betteley, 1096.
Walker & Ragon, 1288.
Désgoffe, 1447.

**Ships of war:**
Henderson, 514.
Longsdon, 787.
Lake (*Cammon* (*Absterdam*)), 1135.
Griffiths, 1164.
Browne, 1419.
Ridsdale, 1524.
Poulson, 1548.
Muratori, 1588.
Strachan (*Gibson*), 2799.
Joyce, 3170.
Schneur, 3178.
Lee & White, 3311.
Cornish, 3661.
Henry (*Ehrmann*), 3692.
Stapleton, 3733.
Allan, 3761.
Harman, 3825.
Rendel, 3826.
Boyman, 3840.
Anderson, 3953.

**Ships' pumps.** *See* "Pumps."

**Ships' rigging:**
Fish & Wotherspoon, 7.
Lake (*Alexander*), 1425.
Townsend, 2063.
Bonneville (*Mehu*), 2911.
Defty, 3842.

**Ships' sails:**
Fish & Wotherspoon, 7.
Lake (*Morris*), 162.
Low, 530.
Henson & Poole, 1424.

**Ships (stopping holes or leaks):**
Wood, 600.
Muratori, 1588.

**Shirts; wristbands; collars; fronts:**
Tombs, 493.
Speight, 562.
Alekan & Alekan, 1141.
McIntyre, 1505.
Guay, 1631.
Speight, 1732.
Lake (*Keep*), 2098.
Speight, 2577.
Smith, 2646.
Wells, 2724.
Foley, 3566.
Taylor, 3580.
Elsden, 3658.
Scattergood, 3881.

**Shoeing horses.** *See* "Horseshoes."

**Shoes and slippers.** *See* "Boots."

**Shot, shell and other projectiles; shot hoists:**
Russell, 227.
Lancaster, 718.
Sparrow & Spencer, 723.
Parsons, 878.
Gilbee (*Icely*), 1223.
Butler, 1510.
Boyd (*Wallace*), 1830.
Johnson (*Forquignon & Ehrmann*), 2712.
De Latouche, 3468.
Rendel, 3826.
Johnson (*Gauduin, Mignon & Rouart*), 3970.

**Shovels.** *See* "Spades."

**Show cases or boxes:**
Matthews, 1983.
Fyfe, 2316.

**Shutters:**
Hyatt, 40.
Titley, 386.
Clark, 1322.
Ridsdale, 1524.
Rowat, 1578.
Scantlebury, 1860.
Castle, 1968.
Stones & Castle, 2007.
Peattie, 2042.
Holbrook, 2052.
Sutcliffe, 2112.
Goold, 2182.
Clark, 2355.
Morris, 2363.
Moss & Crighton, 3024.
Clark, 3246.
Thompson, 3594.
Burstow, 3948.
Lees, 3966.

**Shuttles used in sewing.** *See* "Sewing."

**Shuttles used in weaving.** *See* "Weaving."

**Sickles.** *See* "Reaping."

**Sieves.** *See* "Sifting."

**Sifting; sorting; separating:**
Ennor, 271.
Notara, 439.
Warlich, 454.
Musgrave & Musgrave, 505.
Johnson (*Hignette*), 750.
Benson & Hetherington, 972.
Lake (*Mann*), 1064.
Holcroft & Lackersteen, 1156.
Maynard, 1222.
Walker & Cole, 1365.
Lake (*Cavayé*), 1586.
Corbett, 1630.
Lake (*Brindle*), 1666.
Fereday, 1829.
Davidson, 1896.
Johnson (*Cabanes*), 1944.
Chatwood & Collins, 1954.
Clark, 2031.
Mathews (*Hancock*), 2051.
Imray (*Denayrouze*), 2142.
Lane & Onions, 2366.
Green (*Utech*), 2412.
Hughes (*Werne*), 2423.
Clark (*Chaufourier*), 2478.
Dann (*Rickard*), 2559.
Newton (*Spencer*), 2623.
Tomlinson, 2691.
Evrard, 2720.
Cain, 2859.
Johnson, 3014.
Kenyon, 3068.
Johnson, 3148.
Gregg, 3426.
Johnson (*Hunter & Osborn*), 3486.
Ludlam, 3511.
Maine, 3612.
Benson (*Huntly, Holcomb & Heine*), 3705.

**Sign boards, window and other signs, station and street indicators:**
Lock, 479.
Hunt (*Wells & Zell*), 2915.

**Signalmen's huts:**
Lloyd, 3638.

**Signals, alarms and communicating apparatus:**
Highton, 4.
Galloway, 14.
Handcock, 16.
Garrood & Hardmet, 51.
Lyttle, 109.
Keeling, 150.
Lake (*Allen*), 163.
Wood, 211.
Burr (*Prall*), 253.
Glasspool (*Glasspool*), 276.
Phillips, 384.
Burn, jun., 440.
Marsh, 460.
Smith (*Michaels & Broadwell*), 477.
Clark (*Coe*), 524.
Collins, 550.
Zimdars, 553.
Craig, 557.
Bolitho, 592.
Quick, Messrs., & Cooper, 593.
Westinghouse, jun., 595.
Copeman, 601.
Reilly, 615.
Saunders, 644.
Tandy & Dryden, 648.
Johnson (*Ruggieri*), 674.
Wier, 711.
Smith, 712.
Farquhar, 727.
Moorhouse & Kendall, 740.
Schanschieff (*Haüy, Marquis de Forville*), 767.
Schanschieff (*Haüy, Marquis de Forville*), 769.
Mewburn (*Fastré*), 779.
Graham, jun., 807.
Johnson (*Lamarre*), 827.
Lyttle, 867.
Owen, 886.
Newton (*Schneider*), 917.
Reilly, 918.
Westinghouse, jun., 933.
Wigham, 1015.
Morgan, 1099.
Barlow, 1147.
Broughton, 1231.
Whateley, 1250.
Prince, 1259.
Ayres, 1281.
Imray, 1354.
Ray (*Duchamp*), 1439.
Blackwood, 1440.
Désgoffe, 1447.
Lake (*Myers*), 1453.
Carr & Barlow, 1520.
Calahan, 1537.
Sanderson, 1569.
Easterbrook, 1606.
Ridsdale, 1620.
Quelch, 1668.
Sullivan, 1689.
Westinghouse, jun., 1691.
Newton (*Douillard*), 1729.
Russell & Sax, 1731.
Newton (*Harrington*), 1751.
Gilbert, 1753.
Palmer, 1760.
Burleigh, 1891.
Harvie, 1915.
Siemens (*Siemens*), 1919.
Hookham, 1938.
Paul & Haythorn, 1939.
Fielding, 1987.
Jensen (*Heegaard*), 2022.
Umbers & Fenn, 2039.
O'Neill, 2063.
Morgan-Brown (*Gallaher*), 2064.
Mc Evoy, 2065.
Chambers, 2103.
Cordier, 2202.
Linwood, 2203.
Walker (*Rainbow*), 2216.
Renshaw, 2231.

Signals, &c.—*cont.*
Fairholme, 2260.
Fielding, 2301.
André, 2312.
Macneill, 2390.
Emmens, 2453.
Lake (*Pope*), 2461.
Edwards, 2501.
Prendergast, 2502.
Rippingille, 2604.
Ford, 2678.
Read & Nickoll, 2765.
Owen, 2815.
Maddock, 2846.
Siemens (*Siemens*), 2923.
Edwards, 2984.
Parkin, 3023.
Entwistle, 3105.
Ridpath & Sherring, 3167.
Mewburn (*Moreau*), 3177.
Smith, 3179.
Jennings (*Craig*), 3230.
Zanni, 3262.
Jones, 3287.
Newman & Bartholomew, 3329.
Zimdars, 3340.
Kennard, 3341.
Pinkerton, 3358.
Rousfield (*Lewis*), 3415.
Weir, 3436.
Sykes & Francis, 3448.
Van Choate, 3474.
Prendergast, 3480.
Owen, 3512.
Tandy & Stroudley, 3540.
Lloyd, 3638.
Evans, 3666.
Jaynor, 3735.
Tuddenham, 3762.
Spencer, 3804.
Brown & Brown, 3896.

Silhouette pictures. *See* "Pictures."

Silicoides. *See* "Manure."

Singeing fabrics and yarns. *See* "Finishing."

Sinking wells. *See* "Wells."

Sinks:
Gowans, 87.
Costa & Lawrie, jun., 1598.
Newton (*Thompson*), 1864.
Denham, Messrs., 1956.
Chandler, 2090.
Sutcliffe & Sutcliffe, 2194.
Banner, 2303.
Davies, 2838.
Greig, 3091.
Newton (*Thompson*), 3411.

Size:
Sellars, 393.
Delattre, 967.

Sizing, dressing and gumming yarns:
Lancaster & Bullough, 668.
Delattre, 967.
Delattre, 997.
Worrall & Kershaw, 1070.
Lake (*Locke & Locke*), 1676.
Todd, 1974.
Mills (*Dorlan*), 2029.
Foster, jun., 2043.
Mackenzie, 2645.
Hacking, Hacking & Mallison, 2858.
Sutcliffe & Parker, 3027.
Bullough, 3088.
Grether, 3290.
Wilkinson, 3708.
Bullough, 3770.

Sizing healds. *See* "Healds."

Sizing and glazing paper:
Mills (*Dorlan*), 2029.
Haseltine (*La Monte, Saxe & Clayton*), 2670.
Harrington, 3059.

Skates; skate fastenings:
Pennell, 54.
Cheesbrough (*Fenerty*), 3440.
Thompson, Harris & French, 3522.

Sketching. *See* "Drawing."

Skins and hides. *See* "Leather."

Skips. *See* "Baskets."

Skirts. *See* "Dresses."

Skylights. *See* "Windows."

Slabs or bricks. *See* "Bricks."

Slag utilized for pavement blocks. *See* "Road making."

Slashers:
Lake (*Locke & Locke*), 1676.

Slate. *See* "Stone."

Slates for roofing (packing for transit):
Palmer, 1897.

Slaughter houses:
Norton, 357.

Sleepers (extracting spikes and lifting):
Müller (*Noot*), 1629.

Sleepers for railway rails. *See* "Railways (permanent)."

Slop carts. *See* "Carriages."

Slop pails. *See* "Pails."

Slubbing. *See* "Spinning, twisting."

Sludge. *See* "Manure."

Sluices:
Jensen (*Steinbrenner*), 1474.
Stones & Lowcock, 2520.
Smith, 3577.
Helbronner (*Durand*), 3785.

Smallware looms. *See* "Weaving narrow fabrics."

Smoke extractors. *See* "Flues."

Smoke prevention; burning and consuming smoke:
Kent, 90.
Woods, 277.
Jarman & Mitchell, 338.
Edwards & Robinson, 475.
Rice, 520.
Lake (*Diehl*), 527.
Wright, Broom & Bruce, 654.
Parks, 1366.
Jaynor & Low, 1467.
Wood, 1542.
McKenzie, 1681.
Charpentier, 1720.
De Chodzko, 1823.
Vaughan (*Franklin*), 1902.
Jensen (*Hesgaard*), 2022.
Downes, 2066.
Fern, 2068.
Ashwell, 2134.
Smeaton, 2159.
Knott (*Speakman*), 2171.
Joseph, 2401.
Newton & Price, 2402.
Newton (*Tissot*), 2466.
Thomas, 2575.
Broadbent, 2601.
Lewis, 2664.
Edes, 2774.
Stone, 2790.
Young & Brash, 2823.

Smoke prevention, &c.—*cont.*
Kay, 2863.
Abel (*Orlowski*), 2863.
Campbell, 2910.
McColl & Gillespie, 2939.
Meyer, 2951.
Lake (*Weston*), 3004.
Morris, 3029.
France, 3060.
Milner, 3117.
Russell, 3138.
Johnson, 3146.
Brown, 3225.
Teer, 3243.
Parks, 3260.
Milner, 3282.
Belleville, 3284.
Smith, 3313.
Ash, 3352.
Verrier, 3375.
Blockage, 3431.
Papier, 3521.
Rowan, 3590.
Knott, 3622.
Smith, 3667.
Smith, 3717.
Casson (*Dormoy*), 3763.
Flamand, 3793.
Newton, 3796.
Rydill, 3901.

Smoking apparatus. *See* "Tobacco."

Smoothing irons. *See* "Ironing."

Smutting machines. *See* "Grain (treating)."

Snow and ice (melting):
Hughes (*Folkmann & Kilgen*), 639.

Snuff. *See* "Tobacco."

Soap; detergents; packing soap:
Morfit, 140.
Platt, 969.
Johnson (*Adamson*), 1061.
Cross, 1841.
Van Baerle, 1851.
Thom & Stenhouse, 2186.
Barnett & Slade, 2813.
Lorberg, 2959.
Bickford, 3017.
Hemingway, 3465.
Johnson (*Leconte*), 3856.

Soda. *See* "Alkalies."

Sodium, potassium and their salts:
Weldon, 359.
Smith, 425.
Anderson, 513.
Rich, 547.
Sonstadt, 1054.
Pollard, Schofield & Butel, 2639.
Lyte (*Storck, Henteck, Heutsch, Lutscher & Grininger*), 3565.

Soil (ascertaining condition of). *See* "Boring soil."

Soldering bolts (heating):
Aitken, 2946.
Hamilton & Paterson, 3061.

Soldering metals (blow pipes used in). *See* "Blow pipes."

Solitaires. *See* "Jewellery."

Solutions for joining or repairing india-rubber goods. *See* "India-rubber."

Sorting and separating. *See* "Sifting."

Soups; soup-basins:
Monteith (*Urquhart*), 337.
Johnson (*Adamson*), 1061.
Newton & Swallow, 2843.

**Sowing seed:**
Harrison, 77.
Pidding, 666.
Maynard, 1228.
Cocks, 1560.
Hayes, 2564.
Ogle, 3560.
Lancaster, 3789.
Clemow, 3797.

**Spades and shovels:**
Jones, 400.
Deregnancourt, 1451.
Jensen (*Hoegaard*), 2022.
Blake, 2234.

**Spanners.** *See* "Wrenches."

**Spark arresters:**
Lake (*Brindle*), 1666.
Edwards (*Thornton*), 1969.
Dillon, 2594.

**Specific gravity instruments:**
Nicholls, 3137.

**Spectacles; eye protectors:**
Vale, 72.
Thomas, 1570.
Haseltine (*Moses*), 2493.

**Speed gauges.** *See* "Indicating speed."

**Spermaceti:**
Wilson, 446.
Cox & Cox, 2204.

**Spikes.** *See* "Nails."

**Spindles; spindles and flyers:**
Cunningham, 55.
Rowley, 406.
Carr, 858.
Lake (*Croll, Barrett & Plush*), 909.
Porritt, 1107.
Harrison & Priestland, 1127.
Dupré, 1541.
Stott, 1808.
Chapin, 1862.
Robertson, Orchar, Muir & Mc Ilwham, 1867.
Rawson, 1959.
Whitworth, 2581.
Newton (*Motiron*), 2603.
Walton, 2605.
Mackenzie, 2645.
Hunter & McCloy, 2661.
Lake (*McDonald*), 2695.
Rippin & Rippin, 2775.
Mayall & Smith, 2835.
Clark (*Wilson & Folk*), 2882.
Lake (*Rice*), 2933.
Glover, jun., 3132.
Johnson (*Magnier, Pouilly, Brunet et Cie. & Prevost*), 3196.
Buchanan, jun., 3376.
Brown, 3390.
Marsh, 3408.
Dockray, 3469.
Bourne, 3471.
Hallam, 3539.
Burgess & Robertshaw, 3582.
Clark (*Wilson & Folk*), 3629.
Bullough & Leachman, 3774.
Garforth, 3940.
Gulliver, 3942.
Tweedale, 3967.

**Spinning, twisting, doubling and throwing fibrous materials:**
Gilmore, 29.
Hepworth & Hepworth, 53.
Worth, 124.
Oldroyd & Oldroyd, jun., 167.
Hughes (*De Labarre*), 191.
Walker, 196.
Billington, 197.
Rowley, 406.
Bottomley, 428.
Taylor, 667.
Clark (*Lindsley & Bartlett*), 702.
Crighton, Messrs., 803.
Rawcliffe, jun., Bibby & Fleming, 841.

**Spinning, &c.—*cont.***
Carr, 858.
Asquith & Greenwood, 1000.
Reynolds, 1001.
Nutting, 1035.
Saxby & Winnington, 1037.
Mitchell, 1042.
Ashworth, 1074.
Bonneville (*Martin*), 1078.
Porritt, 1107.
Shaw, 1188.
Blamires, 1294.
Hodgkinson & Thornley, 1317.
Vigoureux, 1340.
Lake (*Sutherland*), 1418.
Shaw, 1528.
Conlong & Smith, 1717.
Firth & Smith, jun., 1766.
Stott, 1808.
Clissold, 2072.
Abel (*Dreyscharff*), 2229.
Fletcher & Fletcher, 2297.
Lewis, 2347.
Rushton & Tonge, 2382.
Platt, 2448.
Dodd, 2462.
Brookes (*Augsburger Kammgarnspinnerei*), 2498.
Whitworth, 2581.
Laycock, 2591.
Newton (*Motiron*), 2603.
Walton, 2605.
Mackenzie, 2645.
Hunter & McCloy, 2661.
Lake (*McDonald*), 2695.
Rippin & Rippin, 2775.
Mayall & Smith, 2835.
Clark (*Wilson & Folk*), 2882.
Murdoch (*Bède & Co.*), 2908.
Lake (*Rice*), 2933.
Morrison & Mitchell, 2937.
Boyd, 2986.
Pooley & McDine, 3011.
Smith & Lewty, 3018.
Rice & Arundel, 3025.
Sutcliffe & Parker, 3027.
Lake (*Freeman*), 3119.
Glover, jun., 3132.
Smith (*Vigoureux*), 3145.
Johnson (*Magnier, Pouilly, Brunet et Cie. & Prevost*), 3196.
Moore, 3222.
Stiff, 3321.
Bowlas, 3325.
Rushton, 3334.
Macken (*Spineux*), 3354.
Brown, 3390.
Marsh, 3408.
Sang, 3455.
Dockray, 3469.
Dodd & Buckley, 3569.
Burgess & Robertshaw, 3582.
Bywater, 3604.
Clark (*Wilson & Folk*), 3629.
Bonneville (*Martin*), 3653.
Middleton, 3671.
Newall, 3753.
Bullough & Leachman, 3774.
Metcalf, 3909.
Garforth, 3940.
Tweedale, 3967.

**Spinning and twisting asbestos or amianthus:**
Fish, 6.
Fish & Wotherspoon, 7.

**Spinning (carding, combing and heckling fibrous materials):**
Whitehead, 23.
Holden, 44.
France, 117.
Walton, 176.
Hughes (*De Labarre*), 191.
Mollady, 234.
Walton, 259.
Smith (*Marée & Varlet*), 442.
Gardner, 491.
Mewburn (*Droulers-Vernier*), 511.
Mills (*Bolette*), 633.
Bradley, Waring & Waring, 678.
Smith, Stake, Tolson, Firth & Bradley, 700.
Clark (*Lindsley & Bartlett*), 702.

**Spinning, &c.—*cont.***
Blamires, Blamires & Marsden, 708.
Brierley & Stott, 709.
Lake (*Caswell*), 773.
Little, 850.
Jefferson, Messrs., 862.
Little & Eastwood, 904.
Butchart, 934.
Evans, 937.
Lake (*Chase & Platt*), 961.
Don & Wright, 970.
Asquith & Greenwood, 1000.
Walton & Fallows, 1008.
Saxby & Winnington, 1037.
Foxwell, 1083.
Walton, 1105.
Tongue, 1114.
King, 1148.
Brooke, 1160.
Graham, 1161.
Cunningham, 1231.
Vick & Cooke, 1242.
Johnson (*Foss & Taft*), 1345.
Newsome, 1407.
Laidlaw & Fairgrieve, 1491.
Dickson, 1643.
Mirfield & Scott, 1661.
Greenwood, 1715.
Greenwood (*Veillon*), 1716.
Simpson, Hopps & Johnson, 1929.
Whitaker & Ashworth, 1933.
Lowry, 1966.
Downing, 1975.
Crofts & Dawson, 2047.
Clissold, 2072.
Paterson & Messrs. Sanderson, 2153.
Whitehead, 2285.
Pringle, 2294.
Gedge (*Jourdeuil & Parisot*), 2322.
Bernhardt, 2436.
Henry (*Pinel & Lecœur*), 2500.
Fairbairn, Kennedy & Naylor, 2533.
Holden, 2730.
Rushton & Macqueen, 2737.
Rippin & Rippin, 2775.
Turner & Pridmore, 2905.
Barbour, 2919.
Hampson, 2938.
Brooke, 2958.
Dickson, 2995.
Lister, 3139.
Morgan-Brown (*Dunham*), 3213.
Law & Law, 3233.
Fleming & Milner, 3337.
Anderton & Gouldin, 3615.
Kenyon & Kenyon, 3656.
Foster, jun., 3749.
Ballantyne, 3848.
Mitchell & Jordinson, 3891.
Garnett, Wheater & Waring, 3906.
Whitehead, 3918.
Taylor, Warburton, Taylor & Wadsworth, 3922.

**Spinning (opening, ginning and cleaning fibrous materials):**
Madden (*Bourne*), 118.
Walker (*Sugden*), 166.
Dobson, Rushton & Dobson, 292.
Dobson, Rushton & Dobson, 494.
Richardson, 456.
Gardner, 491.
Browne (*Count of Montebello*), 510.
Rowan, 584.
Lawson (*Girardoni*), 625.
Lake (*Hall*), 717.
Crighton, Messrs., 803.
Butchart, 934.
Evans, 937.
Saxby & Winnington, 1037.
Foxwell, 1083.
King, 1148.
Crighton, 1153.
Richardson & Fidler, 1230.
Cunningham, 1231.
Duff, 1293.
Mather, 1603.
Dickson, 1643.
Mirfield & Scott, 1661.
Mc Bride, 1721.
Dupont, 1769.
Whitaker & Ashworth, 1933.
Paterson & Messrs. Sanderson, 2153.
Gedge (*Jourdeuil & Parisot*), 2322.

Spinning, &c.—*cont.*
Rushton & Dobson, 2378.
West (*Du Bois*), 2410.
Routledge, 2431.
Clark (*Chaufourier*), 2478.
Michel, 2787.
Duffand & Frear, 2797.
Watson, 2904.
Hampson, 2938.
Dickson, 2995.
Pooley & McDine, 3011.
Johnson (*Purvis*), 3171.
Richardson, 3369.
Whitehead, 3383.
Andrews, 3645.

Spinning ropes. *See* "Ropes."

Spirit levels. *See* "Plumbing."

Spirit pumps. *See* "Beer engines."

Splints (cutting). *See* "Cutting wood."

Sponge:
Lake (*Kendall*), 2740.

Spools. *See* "Bobbins."

Spoons:
Toussaint, 3096.

Spray producers:
Ripley (*Depoully*), 283.
Johnson (*Caldwell*), 340.
Barraclough & Barraclough, 441.
Rigod, 983.
Palmer (*Brrani & Anders*), 1126.
Brown, 1511.
Newton (*Turner & Vanderpool*), 1906.
Prosser, 1973.
Downes, 2066.
Mattson, 2251.
Walton, 2845.
Johnson, 3148.
Parnacott, 3292.
Hughes (*Errani & Anders*), 3481.

Spring motive-power. *See* "Motive-power (mechanical)."

Springing boards. *See* "Games."

Springs:
Vernon, 335.
Gedge (*Hordé*), 964.
Williamson, 1045.
Winram, 1068.
Aston, 1153.
Peyton, 1209.
Edwards, 1287.
Lake (*John*), 1332.
Hughes (*Günther*), 1349.
Waygood, 1358.
Turton, 1371.
Arnold, 1404.
Kern, 1450.
Ducros (*Robert*), 1621.
Holt, 1725.
Rieber, 1813.
Morris, Fletcher, Kelly & Fletcher, 1848.
Scantlebury, 1860.
Turner, 1875.
Stones & Castle, 2007.
Furness, 2009.
Bethune, 2030.
Adams, 2076.
Townsend, 2083.
Fawcett & Coulter, 2129.
Smith, 2196.
Ashlin & Clover, 2245.
Volk, 2250.
Hudson, 2295.
Hughes (*Frary*), 2307.
Bagster, 2373.
Pickering, 2381.
Haseltine (*Sanderson*), 2435.
Johnson (*Wilson Sewing Machine Co.*), 2441.
Hughes, 2468.
Haseltine (*Sanderson*), 2492.
Hoskins, 2524.

Springs—*cont.*
Procter, 2697.
Wood, 2705.
Barker, 2754.
Mitchell & Newton, 2767.
Forder, 2946.
Edwards, 3166.
Burt, 3265.
McIntyre, 3279.
Belleville, 3284.
West & West, 3402.
Hughes (*Systermans*), 3406.
Sykes & Francis, 3448.
Clark (*Assman*), 3571.
Hughes, 3595.
Haseltine (*Manson*), 3601.
Peile, 3633.
Picot, 3677.
Spencer & Scott, 3694.
Gutteridge, 3697.
Cohrs, 3714.
Harrison, 3715.
Allan, 3761.
Hughes (*Mallett Manufg. Co.*), 3832.
Haseltine (*Bradley*), 3910.
Burstow, 3948.
Anderson, 3953.
Spencer & Smith, 3964.

Sprinkling:
Wigner & Williamson, 738.
Newton (*Knight*), 1012.
Paget, 1219.
Edwards, 1379.
Morris, 1728.
Target, 3821.

Spuds. *See* "Tools."

Squares used in brewing. *See* "Brewing."

Squeezing or compressing balls and blooms of iron or steel:
Danks, 2971.

Stables; cattle sheds:
Norton, 357.
Norton, 1151.
Smith, 1314.
Camroux, 2708.
Riley, 3453.

Stacking and unstacking hay, corn, straw, &c.:
Reeves, 1010.
Soame, 1277.
Henson & Poole, 1424.
Holmes, Messrs., 1993.
Warnes & Mitchell, 2100.
Lewin, 2349.
Perkins, 3169.
Maynard, 3674.

Stage figures of men, &c. (actuating):
Thelwall, 1192.

Staining or dyeing velvets, &c. *See* "Dyeing."

Staining paper, wood, &c.:
Joseph, 927.
Harrington, 3959.

Stains in linen (obliterating). *See* "Fluids, &c."

Stair cloths. *See* "Floor cloths."

Stair treads, pads and rods:
Norton, 357.
Norton, 1151.
Lake (*Smith*), 1734.
Clark (*Bailey*), 2064.
Emmens, 2451.
Stewart, 3860.

Stamping glass measures with the government stamp:
Cox, 2769.

Stamping-machines or presses:
Bayly, 319.
McDonald, 352.
Mendel, 390.
Touche, 488.
Newton (*Thompson*), 506.
Johnson (*Reckendorfer*), 575.
Brookes (*Parjon*), 1235.
Pinches, 2409.
Rogers, 2612.
Smith, 2646.
Brewer (*Le Blanc & Vincent*), 2[illegible].
Sloper, 3740.

Stamping or shaping articles in metal, &c.:
Lake (*Shepard & Seaman*), 44[illegible].
Prints (*Kayser*), 46[illegible].
Ellis, 652.
Smith (*Hess*), 1206.
Ashton, 1390.
Cottrill, 1502.
Barnley, 2467.
Edwards, 2599.
Bousfield (*Heaton*), 2707.
Mason, 2780.
Walker, 3256.
Ré (*Vezzoli*), 3405.
Edmeston, 3729.
Manceaux, 3914.

Stamping ores. *See* "Grinding ores."

Stamps, labels and tickets; ticket cases; attaching tickets to goods; cancelling stamps:
McKenzie, 1113.
Ragon (*Alexandre*), 1181.
Webb, 1225.
Brook, 1399.
Longman & Alderman, 1462.
Long, 1635.
Boullier, 1641.
Newton (*Johnson*), 1739.
Le Monnier & Cochet, 1344.
Lake (*Jebb*), 1889.
Ricketts & Lutschaunig, 1907.
Purkis & Leasware, 2074.
Rogers, 2612.
Bebro, 2718.
Wadsworth, 2927.
Johnson, 3463.

Starch; dextrine; packing starch:
Gibbs & Borwick, 314.
Johnson (*Leconte*), 494.
Gibou, Dusart & Bardy, 812.
Nicoll, 836.
Delattre, 967.
Nicoll, 1657.
Hemingway, 3465.
Johnson (*Leconte*), 3966.

Starting machinery; throwing into gear:
Bracewell, Riley & Bracewell, 18[illegible].
Smyth, 187.
Schüssler & Wagner, 333.
Curtis, 746.
Rippin, 941.
Wilson, 1174.
Lake (*Proctor & Osgood*), 1677.
Sacré, 1805.
Johnson (*Albaret*), 1836.
Kirk, 1952.
Mills (*Bennett*), 2283.
Curtis, 2699.
Newton (*Whitehill*), 2769.
Keighley, 2776.
Follows, Bate & Edwards, 2949.
Boyd, 2986.
Johnson (*Rand & Waring*), 3128.
Hornsby, Phillips & Innocent, 3[illegible].
Buchanan, jun., 3376.
Haseltine (*Manson*), 3601.
Mosley, 3637.
Cohrs, 3714.
Kirk, 3911.

Station indicators. *See* "Sign boards."

**Stationery cases:**
Ricketts, 1556.

**Statuary.** *See* "Sculpture."

**Stays and corsets:**
Gamble, 161.
Adlam, 872.
Clark (*Huet*), 1678.
Flood, 2269.
Rossiter, 2419.
Bousfield (*Heaton*), 2707.
Van de Waal, 2710.
Hammond, 2762.
Lyall, 3377.
Morgan-Brown (*Schultz*), 3614.

**Steam-boiler funnels (preventing from scaling):**
Weeks, 141.

**Steam-boiler furnaces.** *See* "Furnaces."

**Steam-boiler gauges.** *See* "Gauges."

**Steam-boilers and generators; generating and superheating steam:**
Fish, 6.
MacDonald & Eskrett, 62.
Montgomerie, 79.
Healey, 85.
Cooke, 123.
Friedmann, 254.
Weir & Weir, 262.
Johnson, 293.
Piedbœuf, 296.
Allibon & Manbré, 318.
Calvert & Taylor, 350.
Johnson (*Busby*), 419.
Gedge (*Welter*), 433.
Wright, Broom & Bruce, 654.
Exall, 672.
Elson, 695.
Smith, 712.
Edwards, 725.
Johnson, 732.
Gray, 744.
Bavin, 772.
Pye-Smith & Ribbans, 831.
Giles, 891.
Allen, 894.
Lake (*Lamm*), 903.
Howard & Bousfield, 905.
Don & Wright, 970.
Mills, 1039.
Stone, 1115.
Lake (*Cassmon (Absterdam)*), 1135.
Edge, 1170.
Ramsden, 1172.
Wilson, 1174.
Hawker, 1177.
Briggs & Ramsay, 1184.
Gedge (*Chevallier*), 1255.
Morgan-Brown (*Goulding*), 1270.
Kochs, 1339.
Hodge & Hodge, 1344.
Jensen (*Erichsen & Maardt*), 1423.
Stewart, Stewart & Wotherspoon, 1441.
Jaynor & Low, 1467.
Wood, 1542.
Messenger, 1545.
Lockwood, 1555.
Hanson, 1644.
Hughes (*Trowbridge*), 1652.
Newton (*Dod*), 1658.
Lake (*Brindle*), 1666.
Hollick, 1672.
Weir & Weir, 1773.
Cazier, 1941.
Crosland, 1962.
Edwards (*Thornton*), 1969.
Stewart & Defty, 2020.
Jensen (*Heegaard*), 2022.
Uhry, 2026.
Alley, 2062.
Cook & Lafone, 2069.
Adams, 2076.
Hyde, 2127.
Robertson, 2136.
Smeaton, 2159.
Lake, 2168.
Defty, 2191.

**Steam-boilers, &c.—*cont.***
Partington, 2233.
Lees, 2248.
Thomas, 2314.
Löbnitz, 2319.
Motard, 2336.
Mill, 2367.
Fairlie, 2387.
Lochhead, 2518.
Ellefsen, 2534.
Smith (*Copeland*), 2565.
Thomas, 2575.
Onffroy (*Onffroy & Co.*), 2578.
Robertson, 2586.
Dillon, 2594.
Fairlie & Perkins, 2616.
Suckling, 2747.
Edes, 2774.
Taylor, 2777.
Bayliss, 2789.
Dale, 2812.
Abel (*Orlowski*), 2883.
Gurden, 2890.
Whittle, 2901.
Hazeldine, 2912.
Brewer (*Le Blanc & Vincent*), 2925.
Nicholson & Skinner, 2931.
Meyer, 2951.
Cochrane, 2955.
Sauvée (*Duclos*), 2967.
Lake (*Weston*), 3004.
Preston, 3010.
Morris, 3029.
Dann (*Alleau*), 3064.
Ashwell, 3073.
Bullough, 3085.
Contarini, 3092.
Milner, 3117.
Fell, 3118.
Sanderson & Proctor, 3161.
Partington & Riley, 3165.
Smith, 3179.
Hawkaley & Wild, 3207.
Wilcke, 3209.
Teer, 3243.
Prince (*Hicks*), 3268.
Belleville, 3284.
Bentall, 3298.
Crosland, 3310.
Smith, 3319.
Kennard, 3341.
Hanson, 3346.
Hare & Stuart, 3359.
Bewley, jun., 3363.
Church, 3395.
Weir, 3436.
Ensor, jun., 3504.
Harrison, 3523.
Jones, 3530.
Church, 3555.
Hitchcock, 3579.
Newton (*Dod*), 3588.
Hanson & Norton, 3613.
Ivory, 3682.
Brookes (*Hoevelmann*), 3700.
Gedge (*Gaudefroy, fils*), 3712.
Sinclair, 3716.
Hilles, 3739.
Roberts, 3773.
Jordan & Paul, 3784.
Musgrave, 3790.
Flamand, 3792.
Taunton, 3859.
Holt, 3869.
Kesterton, 3870.
Suckling, 3893.
Rydill, 3933.
Bullough, 3963.
Spencer & Smith, 3964.

**Steam-boilers (cleansing and preventing incrustation of):**
Ellis & Dobson, 247.
Friedmann, 254.
Calvert & Taylor, 350.
Gedge (*Welter*), 433.
Smith, 624.
Smith, 921.
Friedmann, 1034.
Begg, 1580.
Smeaton, 2159.
Mill, 2367.
Lees & Garforth, 2840.
Meyer, 2951.
Lees & Garforth, 3324.

**Steam-boilers, &c.—*cont.***
Church, 3395.
Mewburn (*Farinaux*), 3404.
Haseltine (*Goodrich*), 3641.
Henderson (*Demailly*), 3852.
Longley, 3952.
Day, 3961.

**Steam-boilers or generators used in preserving food:**
Clark, 3393.

**Steam-boilers (preventing priming):**
Weir & Weir, 262.

**Steam-boilers (water feeding and heating):**
Gilbee (*Argall*), 41.
Higginson, 202.
Newton (*Harris*), 308.
Calvert & Taylor, 350.
Johnson (*Busby*), 419.
Ellis, 611.
Wright, Broom & Bruce, 654.
Frei & Kember, 686.
Elson, 695.
Gray, 744.
Allen, 894.
Lake (*Lamm*), 903.
Caratti & Church, 954.
Mills, 1039.
Briggs & Ramsay, 1184.
Thomas, 1212.
Morgan-Brown (*Goulding*), 1270.
Jensen (*Erichsen & Maardt*), 1423
Lockwood, 1555.
Begg, 1580.
Hughes (*Bicheroux*), 1596.
Robertson, 1675.
Charpentier, 1720.
Körting, 1796.
Crosland, 1962.
Robertson (*Robertson*), 1982.
Wallace, 1999.
Gorman, 2017.
Downes, 2066.
Adams, 2076.
Ashwell, 2134.
Smeaton, 2159.
Knott (*Speakman*), 2171.
Davis, 2214.
Woore & Watt, 2257.
Friedmann, 2271.
Thomas, 2314.
Motard, 2336.
Mill, 2367.
Sutcliffe, 2386.
Onffroy (*Onffroy & Co.*), 2578.
Fairlie & Perkins, 2616.
Taylor, 2777.
Bayliss, 2789.
Young & Brash, 2823.
Lees & Garforth, 2840.
Abel (*Orlowski*), 2883.
Sauvée (*Duclos*), 2967.
Morris, 3029.
Contarini, 3092.
Glydon & Glydon, 3120.
Robertson, 3134.
Cook, 3147.
Sanderson & Proctor, 3161.
Meunier, 3164.
Belleville, 3284.
Lees & Garforth, 3324.
Prince (*Fischer*), 3331.
Church, 3395.
Mewburn (*Farinaux*), 3404.
Harrison, 3523.
Hallam, 3539.
Knott, 3623.
Ivory, 3682.
Brookes (*Hoevelmann*), 3700.
Toller & Smyth, 3711.
Bailey & Grindrod, 3808.
Holt, 3869.

**Steam-carriages:**
Grantham, 173.
Wright, Broom & Bruce, 654.

**Steam-carriages—*cont.***
Lake (*Lamm*), 902.
Downes, 2066.
Hyde, 2127.
Randolph & Harvey, 2407.

**Steam chests (preventing from scaling):**
Weeks, 141.

**Steam-engine tenders (supplying with water):**
Prall, 3410.

**Steam-engines (rendering invisible the exhaust steam of):**
Fell, 3118.

**Steam-engines (stationary, locomotive and marine):**
Caspersen (*Blair*), 28.
Schemioth, 92.
Benson (*Cope & Maxwell*), 104.
Higginson, 202.
Bertieaux, 226.
Lake (*Clark*), 251.
Carter, 323.
Field & Cotton, 365.
Baumann, 389.
Beamish, 532.
Church, 563.
Walker, 613.
Marsden, 649.
Wright, Broom & Bruce, 654.
Sutcliffe, 673.
Melling, 682.
Avery, 714.
Gray, 721.
Edwards, 725.
Johnson, 732.
Bavin, 772.
Rippin, 941.
Peebles (*Steiner*), 946.
Gedge (*Piau*), 953.
Newton (*Gwynn, Gilbert & Barnes*), 995.
Johnson (*Füngling & Möller*), 1077.
Fairlie, 1087.
Lilly, 1101.
Glaysher, 1123.
Wilson, 1174.
Hawker, 1177.
Teal, 1190.
Clark (*Lewis*), 1210.
Outridge, 1217.
Lake (*Baxter*), 1244.
Clark (*Larmanjat*), 1246.
Gedge (*Chevallier*), 1255.
McVey, 1278.
Fielding, 1316.
Lake (*John*), 1332.
Clark (*Massey*), 1351.
Slaughter & Sacré, 1364.
Couper, 1369.
Ley & Pinker, 1461.
De Mignot & Ganter, 1481.
Rooke, 1513.
Westinghouse, jun., 1572.
Lake (*Brindle*), 1666.
Hollick, 1672.
Robertson, 1675.
Holt, 1725.
Clarke (*Falcimagne*), 1748.
Johnson (*Harrison, jun.*), 1758.
Zamoyski & Jackson, 1782.
Sacré, 1805.
Dawes, 1897.
Parker & Robson, 1947.
Edwards (*Thornton*), 1969.
Maddy, 1976.
Robertson (*Robertson*), 1982.
King, 1990.
Furness, 2009.
Sauvée (*Duclos*), 2024.
Uhry, 2026.
Tonkin, 2045.
Thomson & Thomson, 2056.
Downes, 2066.
Adams, 2076.
Melling, 2155.
Hutchinson, 2160.
Richardson, 2167.
Warneck, 2177.

**Steam-engines, &c.—*cont.***
Lake (*Silver*), 2185.
Lake (*Harris*), 2188.
Imray (*Sulzer, Sulzer & Brunet*), 2193.
Partington, 2233.
Ashlin & Clover, 2244.
Coxhead & Miller, 2252.
Jackson, 2272.
Jackson, 2273.
Mills (*Bennett*), 2283.
Levey, 2289.
Hudson, 2295.
Thomas, 2313.
Fairlie, 2387.
Judson (*Cogswell*), 2439.
Church, 2469.
Lake (*Knowles & Saunders*), 2571.
Dillon, 2594.
Jones, 2595.
Fairlie & Perkins, 2616.
Haley, Messrs., 2744.
Story & Lynde, 2791.
Martin & Harper, 2828.
Harris, 2867.
Newsome & Overend, 2873.
Abel (*Orlowski*), 2883.
Kay & Hartley, 2999.
Trémaux, 3068.
Bradshaw, 3084.
Contarini, 3092.
Glydon & Glydon, 3120.
Johnson (*Rand & Waring*), 3125.
Brown (*Colladon*), 3126.
Robertson, 3134.
Smith, 3179.
Davey, 3208.
Lake (*Critchlow*), 3229.
Picking & Hopkins, 3236.
Longridge, 3269.
Ruston, 3304.
Outridge, 3307.
Hanson, 3346.
Fulton, 3361.
Towle (*Dodge & Messrs. Welch*), 3373.
Church, 3395.
Furness (*Furness*), 3452.
Zamoyski & Jackson, 3458.
De Latouche, 3468.
Ball, 3491.
Baumann, 3509.
Stevens, 3547.
Church, 3555.
Keirby, 3558.
West, 3562.
Ashton, 3607.
Ashton, 3608.
Benson (*Cope & Maxwell*), 3667.
Haworth, 3663.
Hamilton, 3738.
Cotter, 3835.
Perkins, 3845.
Holt, 3869.
Mc Carter, 3890.
Williamson & Walker, 3912.
Bullough, 3963.

**Steam greasers.** *See* "Oiling."

**Steam hammers.** *See* "Hammers."

**Steam ploughs.** *See* "Ploughs."

**Steam pumps.** *See* "Pumps."

**Steam reaping or mowing.** *See* "Reaping."

**Steam road rollers.** *See* "Road making."

**Steam traps:**
Edwards (*Blessing, Townsend & Jackson*), 1139.
Robertson, 2136.

**Steaming cloth:**
Gomersall & Gomersall, 2068.

**Steaming grain.** *See* "Grain (treating)."

**Stearine; stearic acid:**
Wilson, 446.
Lake (*Grall*), 1176.
Clark (*Delis*), 3323.

**Steeling wrought iron.** *See* "Metals (smelting)."

**Steels.** *See* "Knives."

**Steering and guiding ploughs, &c.:**
Hill, 65.
Noddings, 134.
Goulton & Sharpe, 577.
Lake (*Carter*), 1049.
Davey, 1165.
Maynard, 1228.
Fison, 1368.
Howard & Bousfield, 1466.
Ransome, 1507.
Russell, 1517.
Ogle, 1843.
Love, 2179.
Hayes, 2564.
Mc Lennan, 3151.
Ogle, 3560.

**Steering and guiding ships:**
Lester, jun., 19.
Pieper, 153.
Leigh, 205.
Hastie, 431.
Smith, 624.
Wright, Broom & Bruce, 654.
Sargent & Temple, 690.
Rippin, 941.
Ashbury (*Hemje*), 974.
Stavers, 1117.
Griffiths, 1164.
Hebson, 1299.
Lyttle, 1321.
Whinyates, 1490.
Hollick, 1672.
Lester, jun., 1736.
Clark (*Rabien & Wellingshoff*), 1913.
Paul & Haythorn, 1929.
Kirk, 1963.
Davis & Hopcraft, 2022.
Newton (*Farcot, Messrs., & Chateau*), 2935.
Strachan (*Gibson*), 2792.
Fair & Bow, 2817.
Atkin, 3061.
Fisken, 3175.
Ogilvie (*Ogilvie*), 3522.
Boddy & Pickering, 3618.
Vacherot, 3699.
Kirk, 3911.

**Steering balloons.** *See* "Aërial-machines."

**Steering road locomotives:**
Hawker, 1177.
Johnson (*Pitts*), 1517.
Taylor, 1832.
Abel (*Orlowski*), 2883.

**Stench traps.** *See* "Traps."

**Stencil plates; stencilling:**
Davis, 1714.
Blackmore, 2608.
Hunt (*Wells & Bell*), 2918.

**Stereopticons:**
Davies (*Busby & Woodbury*), 1186.

**Stereoscopes:**
Henderson (*Pillet*), 1842.
Gedge (*Fasel*), 2236.

**Sticking pins in paper.** *See* "Pins."

**Stills:**
Fletcher, jun. (*Brocklehurst*), 338.

**Stirring.** *See* "Mixing."

**Stockings or hose:**
Brewer (*Appleton*), 1546.
Griswold, 2489.
Ward, 3850.
Scattergood, 3881.
Mellor, 3967.

**Stone, slate and marble; millstones and grindstones:**
Mortlock, 34.
Cunningham, 55.
Lake (*Schott*), 279.
Beaumont & Appleby, 392.
Sellars, 393.
Sturgeon, 507.
Lake (*Gear*), 579.
Grindrod & Worthington, 640.
Drevet, 689.
Cope, 692.
Johnson (*Hignette*), 750.
Ransoms (*Ransome*), 877.
Coulter & Harpin, 959.
Gowans, 978.
Gray (*Renox*), 1215.
Newton (*Anderson*), 1352.
Davey, 1443.
Croakey, 1533.
Gathercole, 1627.
Tucker, 1669.
Tate, 1787.
Kühn, 1840.
Gillott & Copley, 2000.
Thwaites, Fondeville & Bertin, 2003.
Parlour, 2014.
Cunningham, 2019.
Cunningham, 2190.
Leaker, Norman & Leaker, 2238.
Hughes (*Parker*), 2325.
Holmes, jun., 2339.
Jaynor, 2361.
Stone, 2473.
Douglas, 2613.
Smith, 2782.
Mc Donald, 3115.
Davey, 3182.
Corpe, 3183.
Payton, 3187.
Allison, 3220.
Mills (*Wood & Skinner*), 3339.
Bousfield (*Lewis*), 3415.
Tall, 3444.
Thomas, 3462.
Newton (*Tilghman*), 3626.
Cunningham, 3683.
Newton (*Baxter*), 3750.
Magnus, 3831.
Smith, 3915.

**Stone breakers:**
Whittingham, 218.
Marsden, 649.
Sullivan, 1689.
Middleton, 1925.
Marsden, 2357.

**Stop motions; throwing out of gear:**
Pieper, 153.
Lake (*Benton*), 157.
Ashbury, 164.
Bracewell, Riley & Bracewell, 185.
Smyth, 187.
Schüssler & Wagner, 333.
Nuttall (*Isherwood*), 531.
Clark (*Bickford*), 608.
Tannett, Scott, jun., Craven & Fox, 660.
Stephens, 677.
Griswold, 693.
Edwards, 725.
Hughes, 936.
Shaw, 1188.
Richard, 1271.
Firth, Messrs., 1297.
Richardson, 1463.
Shaw, 1528.
Cocks, 1560.
Gedge (*Petit-Toulouse*), 1737.
Johnson (*Albaret*), 1826.
Young, 1912.
Caselton & Toogood, 1920.
Comey & Turner, 1927.
Richter, 2323.
Woodman, 2199.

**Stop motions, &c.—*cont.***
Mac Donnell, 2255.
Mills (*Bennett*), 2283.
Whittemore (*Landfear*), 2311.
Lewis, 2347.
Nussey & Leachman, 2370.
Heyes & Entwistle (*Wilson & Hunter*), 2400.
Morgan-Brown (*Fuller*), 2432.
Platt, 2448.
Newton (*Motiron*), 2606.
Newton (*Whitehill*), 2759.
Wibberley, 2760.
Rippin & Rippin, 2775.
Keighley, 2786.
Follows, Bate & Edwards, 2949.
Boyd, 2986.
Coleby, 3070.
Binns, 3238.
Wilke, 3301.
Brimelaw, 3353.
Buchanan, jun., 3376.
Haseltine (*Manson*), 3601.
Mosley, 3637.
Hughes (*Mallett Manufg. Co.*), 3832.
Taylor, Warburton, Taylor & Wadsworth, 3922.
Clark (*Bulmer & Sheppard*), 3935.

**Stoppers for bottles.** *See* "Bottle stoppers."

**Stoppers for jars.** *See* "Jars."

**Stopping runaway horses.** *See* "Harness."

**Stopping trains.** *See* "Breaks for carriages."

**Storing explosives.** *See* "Magazines."

**Storing grain.** *See* "Grain elevators."

**Stoves.** *See* "Fire-places."

**Strainer plates for paper making.** *See* "Paper."

**Straining.** *See* "Filtering."

**Stranded vessels (carrying lines to).** *See* "Rockets."

**Straps (fastening and connecting):**
Lake (*Alexander*), 1425.

**Straps or bands for driving machinery.** *See* "Bands."

**Straw elevators.** *See* "Stacking."

**Strong rooms.** *See* "Buildings."

**Strontia:**
Hughes (*Daudenart & Verbert*), 2745.
Hughes (*Daudenart & Verbert*), 2746.

**Stucco.** *See* "Cement."

**Studs.** *See* "Buttons."

**Studs for sharpening horse-shoes.** *See* "Horse-shoes."

**Stuffing boxes.** *See* "Axles."

**Subsoiling.** *See* "Ploughing."

**Suction hose.** *See* "Pipes."

**Sugar and syrups:**
Budenberg (*Price*), 235.
Fletcher, jun. (*Brocklehurst*), 326.
Jarman & Mitchell, 338.
Robey, 435.

**Sugar and syrups—*cont.***
Lake (*Morrell*), 680.
Robertson, 790.
Gibou, Dusart & Bardy, 812.
Hollefreund, 880.
Johnson (*Adamson*), 1051.
Barrow & Crosfield, 1171.
Kleberg (*Tsherikovsky*), 1229.
Morgan-Brown (*Cottle*), 1350.
Danchell, 1394.
Lagrange, 1437.
Fryer, 1477.
Newton (*Dod*), 1658.
Robertson, 1675.
Shanks, 1771.
Gill, 2261.
Morfit, 2341.
Morfit, 2357.
Hughes (*Langen*), 2456.
Harvey, 2644.
Chapman, 2887.
Boynton, 2924.
Alleyne, 2930.
Rydill, 2979.
De Michele, 3371.
Buchanan, jun., 3376.
Newton (*Dod*), 3588.
Lyte (*Storck, Hentsch, Hentsch, Lutscher, Grininger & Decottegnie*), 3685.
Lake (*Kersting*), 3737.
Miller, 3926.
Patrick, 3946.
Johnson (*Leconte*), 3956.

**Sulphur:**
Coffey, 64.
Anderson, 518.
Fitz Gerald & Molloy, 1876.
Monckton, 1460.
Todd, 2035.
Cheesbrough (*Clough*), 2156.
Pollard, Schofield & Butel, 2630.
Hargreaves & Robinson, 3032.
Newton (*Walter*), 3142.
Hills & Briggs, 3464.

**Sulphuretted hydrogen:**
Young, 2989.
Hargreaves & Robinson, 3032.
Cobley & Poynter, 3194.

**Sun blinds.** *See* "Window blinds."

**Sun shades.** *See* "Umbrellas."

**Sunken vessels (raising).** *See* "Raising ships."

**Surgery; surgical instruments:**
Foveaux, 74.
Crapper, 231.
Jaques & Banks, 305.
Decamps, 844.
Don & Wright, 970.
Kay & Kay, 1173.
Fontana, 1201.
Arnold, 1404.
Mayer, 1582.
Mattson, 2251.
Fletcher (*Ball*), 2254.
Foveaux, 3591.

**Surveying instruments:**
Lake (*Biggs*), 1019.

**Suspension bridges.** *See* "Bridges."

**Sweeping roads.** *See* "Roads (cleansing)."

**Sympathetic clocks.** *See* "Clocks."

**Syphons.** *See* "Pipes."

**Syphons for drawing off aërated liquids.** *See* "Aërating."

**Syringes:**
Barton, jun., 755.
Robins, 1152.
Arnold, 1404.

Syruping liquids:
Clarke, 2209.

Syrups. *See* "Sugar."

## T.

T-iron:
Berry & Berry, 2345.

Tailings (washing). *See* "Washing ores."

Take-up motion in looms:
West, 591.
Crighton, Messrs., 803.
Lyall, 3377.

Tallies or plant labels. *See* "Horticulture."

Tallow; sampling tallow:
Baird, 1516.
Yule, 3124.
Clark (*Deiss*), 3323.

Tankards. *See* "Drinking vessels."

Tanks. *See* "Cisterns."

Tanners spent bark (utilizing for paper making). *See* "Paper."

Tanning as applied to textile fabrics. *See* "Preserving fabrics."

Tanning skins. *See* "Leather."

Tape legs. *See* "Sizing yarn."

Tape looms. *See* "Weaving."

Tapestry; imitation tapestry:
Bonneville (*Charton*), 1079.
Bonneville (*Charton*), 2133.
Murdoch (*Baudot*), 2537.

Taps. *See* "Cocks."

Tar; acid tars:
Coffey, 64.
Johnson (*Blondin*), 103.
Bonneville (*Gapiand*), 245.
Clark (*Audouin*), 1456.
Lowe, 3005.
Huggett & Huggett, 3037.
Hedley, Smith & Hedley, 3300.

Targets (colouring):
Lysons & Forbes, 1634.

Tarpaulings:
Henson & Poole, 1424.
Timmis, 1696.
Mercier, 1733.

Teaching languages, arithmetic, fire-arms and other sciences:
Colborne, 467.
Gorga, 818.
Cochrane, 1216.
Keene (*Pétry*), 1534.
Simon, 1567.
Spong, 3020.

Tea-kettles converting to heat smoothing irons:
Wimpenny, 1023.

Teapots; obtaining extracts and infusions of tea; mixing teas; packing teas:
Andrew, 184.
Curtis, 327.

Teapots, &c.—*cont.*
Warry, 1162.
Bartlett, 2354.
Blackburn, 3253.
Hemingway, 3465.

Tea trays:
Don & Wright, 970.

Telegraphic printing:
Clark (*D'Arlincourt*), 255.
Rault & Chassan, 304.
Wheatstone & Stroh, 473.
Schanschieff (*Haüy, Marquis de Forville*), 767.
Schanschieff (*Haüy, Marquis de Forville*), 769.
Lake (*Field & Andrews*), 828.
Lake (*Field & Andrews*), 829.
Newton (*Schneider*), 917.
Doubelt (*Kniaghininsky, Sewastganoff & Dornowo*), 1189.
Little, 1207.
Edison, 1453.
Newton (*Harrington*), 1751.
Doubelt (*Kniaghininsky, Sewastganoff & Dornowo*), 1822.
Morgan-Brown (*Gallaher*), 2064.
Morgan-Brown (*Gallaher*), 2073.
Morgan-Brown (*Wessman*), 2661.
Calahan, 2327.
Gally, 2481.
Morgan-Brown (*Rowe*), 2739.
Siemens (*Siemens*), 2923.
Doubelt (*Kniaghininsky, Sewastganoff & Dornowo*), 2945.
Jennings (*Craig*), 3230.
Randall (*Foote*), 3368.
Van Choate, 3474.
Young, 3548.
Haseltine (*Gray & Barton*), 3586.
Phelps, 3936.

Telegraphs (electric):
Highton, 4.
Harling, 81.
Robson, 86.
Lyttle, 109.
Lake (*Radde*), 121.
Clark (*D'Arlincourt*), 255.
Cockshott, 412.
Wheatstone & Stroh, 473.
Truman, 482.
Schanschieff (*Haüy, Marquis de Forville*), 767.
Schanschieff (*Haüy, Marquis de Forville*), 769.
Mc Evoy, 832.
Lyttle, 867.
Newton (*Schneider*), 917.
Doubelt (*Kniaghininsky, Sewastganoff & Dornowo*), 1189.
Little, 1207.
Lyttle, 1213.
Highton, 1279.
Lyttle, 1320.
Larmuth & Norton, 1412.
Highton, 1428.
Ray (*Duchamp*), 1439.
Désgoffe, 1447.
Siemens, 1473.
Calahan, 1537.
Rolls, 1786.
Doubelt (*Kniaghininsky, Sewastganoff & Dornowo*), 1832.
Lake (*Hiler*), 1847.
Siemens (*Siemens*), 1919.
Jobson, 1961.
Mc Evoy, 2065.
Stanley, 2213.
Gally, 2481.
Highton, 2547.
Dick & Dick, 2627.
Siemens (*Siemens*), 2923.
Doubelt (*Kniaghininsky, Sewastganoff & Dornowo*), 2945.
Henry (*Rogers*), 2967.
Ross, 3109.
Lyttle, 3206.
Stearns, 3344.
Thomas, 3462.
Van Choate, 3474.
Young, 3548.
Lloyd, 3638.
Winter, 3701.

Telegraphs (electric)—*cont.*
Lake (*Simmons*), 3736.
Tuddenham, 3762.
Harling, 3779.

Telegraphs (nocturnal):
Newton (*Douillard*), 1729.

Telegraphs (pneumatic and automatic):
Lake (*Myers*), 1452.
Jaynor, 3735.

Telescopes:
Thomas, 1570.
Woods & Clark, 1923.

Tell-tales:
Westinghouse, jun., 595.
Wier, 711.
Russell & Sax, 1731.
Gilbert, 1753.
Tabor, 1888.
Spagnoletti, 2240.
Fairholme, 2260.
Whitehouse & Phillips, 3016.
Zimdars, 3340.
Sykes & Francis, 3448.

Temples for looms. *See* "Weaving (pickers)."

Tenoning. *See* "Cutting."

Tentering machines:
Crowther, 2290.

Tents and marquees:
Henson & Poole, 1424.
Camroux, 2708.

Terry and pile fabrics. *See* "Weaving carpets."

Testing and indicating strains:
Vivian & Mackenzie, 3351.

Theatres (drop curtains, lights, balconies, boxes, &c.):
Racey & Young, 498.
Trotman, 1411.
Lake (*Chéradame, Le Dreux & Oursel*), 2053.
Tully & Robinson, 3467.

Theodolites:
Lake (*Biggs*), 1619.
Eckhold, 2909.

Therapeutics. *See* "Medical treatment of man."

Thermometers:
Johnson (*Eschendorfer*), 578.
Mewburn (*Fastré*), 779.
Newton (*Thompson & Olson*), 1145.
Engel, 1388.
Payne (*Read*), 2164.
Foveaux, 3591.

Thief detectors:
Calahan, 1537.
Zimdars, 3340.

Thrashing and hulling corn, grain and seeds:
Allerton, 114.
Kiloh, 415.
Maynard, 1232.
Norton & Carter, 1911.
Holmes, Messrs., 1993.
McKinlay, 2405.
Lewin, 2849.
Willsher, 3721.

Threads:
Fish & Wotherspoon, 7.
Clark (*Sheffield & Mellor*), 289.
Browne (*Count of Montebello*), 519.
Brierley & Stott, 709.

Threads—*cont.*
Johnson (*Hainisch & Hainisch*), 1076.
Condie, 1237.
Vigoureux, 1340.
Lewis, 2347.
Crawford & Crawford, 2418.
Smith (*Vigoureux*), 3145.
Ballantyne, 3348.

Throwing fibrous materials. *See* "Spinning, twisting."

Throwing into gear. *See* "Starting machinery."

Throwing out of gear. *See* "Stop motions."

Tickets. *See* "Stamps."

Tie bars (grips or fastenings for securing the ends):
Defty, 3342.

Tieing up hanks or skeins of yarn or thread:
Coleby, 3070.

Tiles. *See* "Bricks."

Tilling land. *See* "Ploughing."

Tilting barrels. *See* "Cask tilters."

Time-keepers. *See* "Clocks."

Tin and lead foil:
Morton, 96.

Tin and terne plates. *See* "Coating metals."

Tin plate scraps (utilizing):
Morton, 1739.
Morton, 3676.

Tins and canisters:
Warren, 113.
Hunt (*Wells & Zell*), 2915.

Tinting or colouring lenses. *See* "Lenses."

Tinting photographs. *See* "Photography."

Tippets. *See* "Muffs."

Tobacco, snuff, cigars and smoking apparatus:
Elman & Brown, 24.
Edgcumbe & Fitz Maurice, 112.
Dee, 127.
Dee, 156.
Boger, 246.
Clark (*De Susini-Ruiseco*), 300.
Grafton, 341.
Oldroyd, 364.
Ward, 496.
Laporte & Fontaine, 800.
Mewburn (*Harrass*), 913.
Tiernan, 1103.
Prince (*Bauer & Hiess*), 1282.
Fanshawe & Bird, 1323.
Henry (*Peltier & Paillard*), 1336.
Culp, 1377.
Schulze (*Streubel*), 1385.
Crop, 2016.
Alloway, 2138.
Haseltine (*Tunner*), 2329.
Hughes (*Pistor & Ciacher*), 2422.
Hughes (*Clervoux*), 2430.
Fellows, 2343.
Schulze (*Streubel*), 2880.
Macintosh & Boggett, 2947.
Beil, 3158.
Tanner, 3189.
Ibbetson, 3312.
Clark (*Aubertin & Hannart*), 3441.
Meiter, Smith & Minasi, 3457.
Ward, 3583.

Tobacco, &c.—*cont.*
Schott, 3793.
Triscott, 3904.
Wood, 3945.

Tongs; nail plate tongs:
Bousfield (*Heaton*), 1591.
Garey, 1812.

Tools; tool holders:
Gowans, 978.
Lake (*Date & Date*), 1068.
Johnson (*Barret & Verdreau*), 1121.
Deregnaucourt, 1431.
Brooks, 1571.
Bousfield (*Heaton*), 1591.
Müller (*Noot*), 1639.
McNeile, 1781.
Lowry, 1856.
Donovan, 2055.
Prince (*Von Spörre*), 2059.
Haseltine (*Alexander*), 2282.
Bodmer, 2383.
Field, 2523.
Millen & Muir, 2549.
Bonneville (*Baville*), 2640.
Boeklen, 2803.
Shedlock (*Shedlock*), 3058.
Yule, 3124.
Jensen (*Brooks*), 3477.
Newton (*Baxter*), 3750.

Torches for lighting gas:
Lake (*Batchelder*), 783.
Lake (*Batchelder*), 1378.
Lake (*Batchelder*), 3299.

Torpedoes; torpedo launches:
Mc Evoy, 832.
Mc Evoy, 2085.
Wellesley (*Von Scheliha*), 3536.

Tournures or bustles. *See* "Dresses."

Towels and napkins:
Shields, 2829.

Towing boats. *See* "Propelling ships."

Toys:
Sparrow & Spencer, 723.
Brode & Brode, 804.
Edwards, 1287.
Jewitt (*Ross*), 1971.
Tongue (*Giery*), 2519.
Lindsay, 2821.
Fenby, 3077.

Tracing. *See* "Drawing."

Tracing music. *See* "Musical notes."

Track clearers and cleaners for tramways and railways:
Wood, 211.
Minns, 627.
Cross & Maggillivray, 1446.
Marchant, 2068.
Chauncy, 3434.

Traction-engines:
Hanscom, 181.
Gedge (*Welter*), 423.
Wright, Broom, & Bruce, 654.
Johnson (*Fünglung & Möller*), 1077.
Hawker, 1177.
Clark (*Lewis*), 1210.
Lake (*Baxter*), 1244.
Johnson (*Fitts*), 1417.
Holt, 1725.
Zamoyski & Jackson, 1782.
Sacré, 1805.
Taylor, 1832.
Bethune, 2030.
Downes, 2066.
Marchant, 2068.
Adams, 2076.
Hyde, 2127.
Abel (*Orlowski*), 2883.
Holt, 3869.

Trade marks:
Mendel, 380.
Perry, 688.
Michaelis (*Becker*), 1566.
Boullier, 1641.
Bonneville (*De Meitre*), 2211.

Tramway carriages and breaks:
Grantham, 173.
Wood, 213.
Wright, Broom & Bruce, 654.
Palmer, 691.
Roberts, 696.
Curtis, 746.
Lake (*Lamm*), 903.
Guttman, 1057.
Liddington, 1094.
Clark (*Larmanjat*), 1246.
Hughes & Spooner, 1315.
Hammant, 1338.
Holt, 1725.
Zamoyski & Jackson, 1782.
Taylor, 1832.
Imray (*Heberlein*), 1849.
Downes, 2066.
Adams, 2076.
Krieger, 2173.
Randolph & Harvey, 2407.
Hamilton, 2685.
Curtis, 2699.
Hughes, 2832.
Davies, 3012.
Grantham, 3333.
Lake (*Mekarski*), 3333.
White, 3394.
Zamoyski & Jackson, 3458.
Spencer & Scott, 3694.
Cohrs, 3714.
Holt, 3869.

Tramway wheels. *See* "Wheels for carriages."

Tramways; subterranean and suspended tramways:
Minns, 627.
Roberts, 696.
Curtis, 746.
Kincaid, 789.
Gowans, 978.
Norton, 1151.
Clark (*Larmanjat*), 1246.
Macneill, 1353.
Lyttle, 1814.
Hill, 2097.
Copland, 2141.
Emmens, 2451.
Lyttle, 2463.
Hughes, 2660.
Curtis, 2699.
Hughes, 2832.
Haworth, 3242.
Johnson, Ellington & Harrison, 3650.
Copland, 3925.

Tramways (cleaning). *See* "Track clearers."

Tramways (portable adjusting points for):
Barker & Jones, 3493.

Tramways (wire):
Hodgson, 418.
Cooper (*Cooper*) 1289.

Transmitting motion. *See* "Propelling or driving."

Traps for birds and other animals:
Pesch & Gray, 3072.
Crawshaw & Kenward, 3648.

Traps for cisterns, drains, &c.:
Clark, 27.
Molesworth, 655.
James, 778.
Smith, 1022.
Kyle, 1095.
Carter & Carter, 1484.
Costa & Lawrie, jun., 1593.
Newton (*Thompson*), 1864.

Traps for cisterns, &c.—*cont.*
Denham, Messrs., 1936.
Pullen, sen., & Pullen, jun., 2163.
Sutcliffe & Sutcliffe, 2194.
Banner, 2303.
Greig, 3091.
Capel, 3168.
Field, 3348.
Newton (*Thompson*), 3411.
Brocklehurst & Crossley, 3688.

Traversers and guides. *See* "Propelling machinery."

Treadles. *See* "Propelling or driving."

Tree blocks for boot-making:
Gedge (*Brunel*), 1985.

Trenches; entrenching:
Goulton & Sharpe, 577.
Lake (*Carter*), 992.
Lake (*Carter*), 1049.
Knowles & Mayell, 1579.

Triangles (instruments for solution of):
Adams, 2379.

Tricycles. *See* "Velocipedes."

Trimmings:
Hughes, 15.
Carlile, 71.
Magaud, 2113.
Lewis, 2347.
Dixon, 2394.
Peake, 2658.
Boutherin, 3573.

Troughs or bins:
Norton, 1151.
Everitt, 1650.

Trowels (garden). *See* "Tools."

Trucks (fireproof) used in treating castings:
Lyttle, 1811.

Trunks. *See* "Portmanteaus."

Trusses for hernia:
Newton (*Patterson & Rowe*), 3044.
Darlow, 3221.

Tube cleaners; cleaning pipes:
Johnson (*Sellers & Sellers*), 30.
Calvert & Taylor, 350.
Howard & Bousfield, 905.
Long, 1118.
Box, 1309.
Cornish, 1420.
Lees & Garforth, 2840.
Ferrie, 3008.
Goldsmith & Dilkes, 3369.
Lees & Garforth, 3534.
Day, 3961.

Tube expanders:
Exall, 672.

Tubes. *See* "Pipes."

Tubs:
Werner, 865.
Glazier, 3278.

Tuck markers. *See* "Sewing."

Tunnels and subways:
Cranston, 145.
Beaumont & Appleby, 392.
Poch, 656.
Cope, 692.
Owen, 886.
Brewer (*Frye*), 1011.
Pochet & Lemoine, 1232.
Macneill, 1363.
Wattesu (*François & Dubois*), 1398.
Joseph, 2491.

Tunnels and subways—*cont.*
Shepherd & Stuckey, 2756.
Owen, 2815.
Johnson (*Rand & Waring*), 3125.
Newton (*Tilghman*), 3626.

Turbines. *See* "Waterwheels."

Turning and turning tools:
Leburn, 18.
Carter, 328.
Jaques & Oakley, 546.
Taylor, 687.
Dumbleton, 822.
Jaques & Oakley, 851.
Holmes, 923.
Clay, 1014.
Feldtmann (*Bolonin*), 1020.
Brewer, (*Lowden*), 1924.
Towle (*Pratt*), 2305.
Horton, 2408.
Stiff, 3321.
Towle (*Dodge & Messrs. Welch*), 3373.
Brown, 3816.
Cornforth & Dangerfield, 3819.
Borthwick, 3864.

Turnips (gathering). *See* "Potatoes."

Turnstiles:
Liddington, 1094.
Gray, 1735.
Starr, 2079.
Wier, 2145.
Robinson, 2663.
Bainbridge, 3617.

Turntables for bridges. *See* "Bridges."

Turntables for railways. *See* "Railway turntables."

Turpentine:
Platt, 969.
Lake (*Kersting*), 3737.

Turrets for ships. *See* "Ships of war."

Tuyeres:
Brewer (*Baker*), 1065.
Charpentier, 1720.
Haseltine (*Middleton*), 1861.
Smith & Willans, 1876.
Bartle (*Bartle*), 2116.
Horton, 3286.

Twine. *See* "Ropes."

Type. *See* "Printing."

Type (flexible) for transferring impressions where aqueous acid and alkaline preparations are employed:
Venman & Warne, 3944.


## U.


Ulmic compounds:
Smith (*Du Motay*), 2.

Umbrellas, parasols and sunshades:
Lake (*Morris*), 162.
Doudney & Adams, 173.
Johnson & Hatchman, 815.
Sievier, 843.
Moorhouse & Kendall, 910.
Powis, 1256.
Engel, 1388.
Shaw, 2375.
Barnley, 2467.
Robison, 2632.

Umbrellas, &c.—*cont.*
Cox & Holland, 2907.
Cox & Holland, 2962.
Fourquier & Triquet, 3075.
Johnson (*Hersberg & Hersberg*), 3210.
Wardroper, 3576.
Clark (*Dumonthier*), 3617.

Uncoupling:
Wright, Broom & Bruce, 634.
Hough, 1712.
Brimelow & Sutherst, 3357.

Unloading waggons. *See* "Carriages (unloading)."

Unstacking hay, &c. *See* "Stacking."

Upholstery (mattresses, beds, cushions and curtains):
Brandon (*De Gonzalo & Grissl*), 32.
Macintosh & Boggett, 137.
Walker, 196.
Blundell, 353.
Racey & Young, 498.
Sargent, 748.
Gedge (*Hordé*), 964.
Johnson (*Adamson*), 973.
Winram, 1068.
Alekan & Alekan, 1141.
Aston, 1183.
Peyton, 1209.
Myerns, 1286.
Darlow, 1334.
Atkins, 1686.
Morris, Fletcher, Kelly & Fletcher, 1848.
Phillipson, 1855.
Sutcliffe, 2112.
Smith, 2196.
Atkins, 2222.
Shaw, 2375.
Pickering, 2381.
Dixon, 2394.
Hoskins, 2524.
Macintosh & Boggett, 2554.
Wood, 2705.
Lake (*Kendall*), 2740.
Taylor, 2813.
Macintosh & Boggett, 2947.
Balin, 3001.
De Froideville, 3190.
Speirs, 3237.
Picot, 3677.

Urinals:
Bostel, 269.
Baker, 1996.
Stanford, 2118.
Davies, 2338.
Bailey, 2954.
Underhay, 3038.
Morgan, Macaulay & Waide, 3[illegible].
Holcroft, 3456.
Shanks, 3796.
Badin, 3913.

Urine (treating). *See* "Manure."


## V.


Vacuum gauges. *See* "Gauges."

Vacuum pans:
Fletcher, jun. (*Brocklehurst*), 23.
Robertson, 799.
Benson (*Hayes*), 802.
Newton (*Dod*), 1638.
Smith, 3179.
Newton (*Dod*), 3868.

Valve stoppers. *See* "Bottle stoppers."

Valves (accumulator):
MacDonald & Eskrett, 62.

**Valves (aërated liquid).** *See* "Aërating."

**Valves (air):**
Johnson (*Sellers & Sellers*), 50.
Paraire, 126.
Westinghouse, jun., 595.
Copeland, 825.
Neill, 906.
Westinghouse, jun., 933.
Kay & Kay, 1173.
Westinghouse, jun., 1226.
Watteau (*François & Dubois*), 1398.
Lake (*Myers*), 1452.
Berry, 1498.
Eckhold, 1547.
Hack, 1683.
Harrison & Harrison, 1706.
Tommasi, 1753.
Maddison, 1798.
Abate, 1853.
Housman, 1863.
Vaughan (*Franklin*), 1902.
Edwards (*Thornton*), 1969.
Wallace, 1999.
Easton & Tattersall, 2066.
Cole & Acton, 2091.
Bartle (*Bartle*), 2116.
Pullar, 2246.
Haseltine (*Woods*), 2281.
Barton, 2298.
Newton (*Hoe*), 2361.
Lake (*Knowles & Saunders*), 2571.
Thomas, 2575.
Jones, 2595.
Hamilton, 2685.
Kienast, 2721.
Gibbs, 2742.
Rand, 2748.
Lowe, 2773.
Newton (*Leavitt*), 2784.
Macintosh & Boggett, 2947.
Mann, 2998.
Morris, 3029.
Johnson (*Rand & Waring*), 3125.
Head & Brown, 3197.
Lake (*Critchlow*), 3239.
Hurd & Simpson, 3241.
Lake (*Mekarski*), 3339.
Bewley, jun., 3363.
Stanley, 3409.
Church, 3565.
West, 3562.
Newton (*Dod*), 3588.
Maine, 3612.
Taylor, 3725.
Jaynor, 3735.
Hamilton, 3738.

**Valves (barrel).** *See* "Casks (tapping)."

**Valves (drain and sewer):**
Johnson, 472.
Lake (*Daniels*), 1500.
Banner, 2203.
Abel (*Booraff*), 3739.

**Valves (fire-engine, hydrant and pump):**
Ronald & Farmer, 39.
Lake (*Allen*), 165.
Ashberry, 164.
Burr (*Prall*), 258.
Wolstenholme, 924.
Manent, 963.
Clark (*Reynolds*), 1746.
Atkins, 1888.
Sagar, 1900.
Millward (*Fricker, jun.*), 1945.
Kirk, 1953.
Robertson (*Robertson*), 1962.
Baker, 1996.
Tonkin, 2045.
Morgan-Brown (*Houghton*), 2268.
Mills (*Bennett*), 2283.
Nussey & Leachman, 2370.
Reynolds, 2596.
Hall, 2985.
Picking & Hopkins, 3236.
Reynolds, 3264.
Holman, 3428.
Hallam, 3539.
Kay, 3602.

**Valves (fire-engine, &c.)—*cont.***
Selden, 3611.
Tangye, 3724.
Kirk, 3911.

**Valves (furnace):**
Healey, 85.
Townsend, 1914.
Preston, 3010.
Siemens, 3642.

**Valves (gas):**
Andrews, 99.
Bonneville (*Allen & Dessey*), 375.
Ozanne, 707.
Copeland, 825.
Outridge, 1217.
Pritchard, 1234.
Newton (*De Bisschop*), 1594.
Dugdale, Mingrat & Vansteenkiste, 1682.
Hack, 1683.
Johnson (*Lemaire & Sonnois*), 1791.
Giroud, 1953.
Rogers, 1967.
Wallace, 1999.
Stanley, 2313.
Haseltine (*Fogarty*), 2296.
Lake (*Mueller*), 2460.
Vincent, 2510.
Box, 2542.
Judkins, 2577.
Lockhart, 2659.
King, 2814.
Sugg, 2841.
Fisher, 2976.
Rigollot, 3063.
Bennett, 3271.
Hedley, Smith & Hedley, 3300.
Tully & Robinson, 3467.
Church, 3555.
Hamilton, 3738.
Kennelly, 3866.

**Valves (gas-lamp blow-pipe):**
Harper, 3233.

**Valves (grain elevator):**
Lake (*Harris*), 2188.

**Valves (making india-rubber).** *See* "India-rubber."

**Valves (meter):**
Muschamp, 263.
Fleury & Tylor, 1201.
Hollands, Maker & Jefferies, 1663.
King, 1990.
Tonkin, 2045.
Alley, 3342.
Haseltine (*Spooner*), 3693.

**Valves (ships'):**
Spence, 56.
Strauss (*Harris*), 745.
Lyttle, 2212.

**Valves (steam-boiler):**
MacDonald & Eskrett, 62.
Johnson, 732.
Giles, 891.
Bennett, 1050.
Clark (*Legat*), 1098.
Turton, 1371.
Lockwood, 1555.
Hughes (*Trowbridge*), 1652.
Lake (*Locke & Locke*), 1676.
Weir & Weir, 1773.
Cazier, 1941.
Lees, 2248.
Friedmann, 2271.
Abel (*Orlowski*), 2353.
Gurden, 2890.
Smith, 3179.
Hawksley & Wild, 3207.
Wilcke, 3209.
Belleville, 3284.
Bewley, jun., 3363.
Clark, 3393.
Church, 3395.
Weir, 3436.
Hallam, 3539.
Church, 3555.
Roberts, 3773.

**Valves (steam-boiler)—*cont.***
Jordan & Paul, 3784.
Bailey & Grindrod, 3806.
Bullough, 3963.

**Valves (steam-engine):**
Caspersen (*Blair*), 28.
Schamioth, 93.
Benson (*Cope & Maxwell*), 164.
Berticaux, 226.
Lake (*Clark*), 251.
Baumann, 389.
Fletcher, 549.
Church, 563.
Wright, Broom & Bruce, 654.
Melling, 682.
Copeland, 825.
Rippin, 941.
Peebles (*Steiner*), 946.
Bennett, 1050.
Johnson (*Füngling & Möller*), 1077.
Lilly, 1101.
Clark (*Lewis*), 1210.
Outridge, 1217.
Mc Vey, 1278.
Waygood, 1358.
Couper, 1369.
Watteau (*François & Dubois*), 1398.
Rooke, 1513.
Westinghouse, jun., 1572.
Dugdale, Mingrat & Vansteenkiste, 1682.
Hack, 1683.
Colby, 1727.
Clark (*Reynolds*), 1746.
Dawes, 1857.
Paul & Haythorn, 1989.
Parker & Robson, 1947.
Robertson (*Robertson*), 1962.
King, 1990.
Sauvée (*Duclos*), 2034.
Tonkin, 2045.
Melling, 2155.
Hughes, 2157.
Richardson, 2167.
Lake (*Harris*), 2188.
Imray (*Sulzer, Sulzer & Ernst*), 2193.
Ashlin & Clover, 2244.
Coxhead & Miller, 2262.
Jackson, 2272.
Jackson, 2273.
Mills (*Bennett*), 2283.
Levey, 2289.
Thomas, 2313.
Judson (*Cogswell*), 2429.
Church, 2469.
Jones, 2595.
Fish, 2671.
Reynolds, 2696.
Haley, Messrs., 2744.
Story & Lynde, 2791.
Martin & Harper, 2863.
Houston 2872.
Abel (*Orlowski*), 2883.
Kay & Hartley, 2999.
Rigollot, 3063.
Bradshaw, 3084.
Johnson (*Rand & Waring*), 3125.
Oddy, 3136.
Smith, 3179.
Gilbee (*Bosshard & Martin*), 3191.
Lake (*Critchlow*), 3239.
Picking & Hopkins, 3236.
Bennett, 3271.
Ruston, 3304.
Outridge, 3307.
Hanson, 3346.
Fulton, 3361.
Church, 3395.
West & West, 3402.
Roberts, 3403.
Furness (*Furness*), 3452.
Ball, 3491.
Brydon, Davidson & Warrington, 3507.
Baumann, 3509.
Church, 3555.
West, 3562.
Ashton, 3608.
Benson (*Cope & Maxwell*), 3617.
Haworth, 3662.
Robertson, 3665.
Tangye, 3724.
Hamilton, 3738.

**Valves (steam-engine)—*cont.***
Marland, 3815.
Cotter, 3835.
Perkins, 3845.
Williamson & Walker, 3912.
Bullough, 3963.

**Valves (water):**
Mac Donald & Eskrett, 62.
Heshuysen, 519.
Tylor & Fleury, 523.
Pashley, 819.
Copeland, 825.
Gedge (*Piau*), 953.
Cochran, 1009.
Fleury & Tylor, 1180.
Outridge, 1217.
Fenby, 1276.
Brookes (*Farjon*), 1355.
Morris, 1386.
Preston, Prestige, Preston & Prestige, 1438.
Messenger, 1545.
Dugdale, Mingrat & Vansteenkiste, 1682.
Hack, 1683.
Maddison, 1798.
Lambert & White, 1836.
Taylor 1904.
Kirk, 1952.
Sauvée (*Duclos*), 2024.
Beston & Tattersall, 2066.
Chandler, 2090.
Heath, Evens & Heath, jun., 2125.
Robertson, 2136.
Lake (*Harris*), 2188.
Hawley, 2264.
Tylor, 2292.
Oldroyd, 2359.
Stoney, 2372.
Cawse, 2428.
Baller, 2452.
Church, 2469.
Shanks, 2643.
Hooper, 2749.
King, 2814.
Davies, 2838.
Bailey, 2954.
Trémaux, 2966.
Davies, 3012.
Pontifex & Barton, 3033.
Underhay, 3058.
Rigollot, 3063.
Sweet, 3082.
Day, 3152.
Lake (*Critchlow*), 3229.
Bennett, 3271.
Barr, 3348.
Towle (*Dodge & Messrs. Welch*), 3373.
Church, 3395.
Morgan, Macaulay & Waide, 3489.
Holcroft, 3456.
Tully & Robinson, 3467.
Blogg, 3489.
Wright, 3512.
Church, 3555.
West, 3562.
Clarke, 3726.
Hamilton, 3738.
Helbronner (*Durand*), 3785.
Shanks, 3796.
Spencer, 3804.
Bailey & Grindrod, 3808.
Thorp, 3833.
Penn, 3871.
Kirk, 3911.

**Valves (water-closet):**
Ronald & Farmer, 89.
Carter, 465.
Blundell, Messrs., 607.
Wright, 1005.
Chandler, Messrs., 1261.
Morris, 1386.
Ross, 1414.
Preston, Prestige, Preston & Prestige, 1438.
Denham, Messrs., 1936.
Tylor, 2292.
Cawse, 2428.
Shanks, 2643.
Synge, 2663.
Davies, 2838.
Cameron & Smith, 3127

**Valves (water-closet)—*cont.***
Morgan, Macaulay & Waide, 3489.
Forrest & Hayes, 3542.
Clarke, 3726.
Spencer, 3804.
Penn, 3871.

**Vapours for medicinal purposes.** *See* "Medical treatment of man."

**Varnishes; varnishing:**
Johnson (*Reckendorfer*), 578.
Platt, 969.
Davis, 1714.
Bretherick, 1792.
Thwaites, Fondeville & Bertin, 2003.
Bagley, 3421.
Morgan, 3460.
Lake (*Kersting*), 3737.
Magnus, 3831.
Harrington, 3959.

**Vases; flower vases:**
Lake (*Chèradame, Le Dreux & Oursel*), 2053.
Sebille, 2491.
Goss, 3129.
Bousfield (*Lewis*), 3415.

**Vats.** *See* "Cisterns."

**Vegetable dishes.** *See* "Dishes."

**Vegetable oils.** *See* "Oils from seeds."

**Vegetables (preserving).** *See* "Preserving food."

**Velocipedes:**
Ducros (*Robert*), 1621.
Schildberg, 3396.

**Velvets.** *See* "Weaving carpets."

**Veneers.** *See* "Wood."

**Venetian blinds.** *See* "Window-blinds."

**Vent pegs for casks.** *See* "Casks."

**Ventilating carriages:**
Smith (*Michaels & Broadwell*), 477.
Feldtmann (*De Dereshan*), 820.
Boyle, 1296.
Viehoff & Voss, 2151.
Thompson, 2195.
Sabberton, 2356.
Joseph, 2401.
Lake (*Briggs*), 2741.
Mann 2998.
Maine, 3612.
Baker, 3807.

**Ventilating drains and sewers:**
Seddon, 106.
Gatty, 233.
Stott, 449.
Macpherson, 564.
Molesworth, 655.
Smith, 1022.
Armytage, 1529.
Johnson, 2126.
Greig, 3091.
Aldridge, 3157.

**Ventilating houses and buildings:**
Brown, 105.
Titley, 386.
Wright, Broom & Bruce, 654.
Lawson & Hainsworth, 919.
Boyle, 1296.
Looker, 1397.
Dupré, 1541.
Abate, 1853.
Housman, 1863.
Walton, 1972.
Johnson (*Nazerauz*), 2054.
Viehoff & Voss, 2151.
Goold, 2182.
Thompson, 2195.
Joseph, 2401.

**Ventilating houses, &c.—*cont.***
Christy, jun. (*Tucker*), 2455.
Lockhart, 2659.
Lake (*Briggs*), 2741.
Boyle, 2875.
Rydill, 2979.
Alison, 3163.
Verrier, 3375.
Tall, 3444.
Papier, 3521.
Maine, 3612.
Rydill, 3901.

**Ventilating mines and shafts:**
Wright, Broom & Bruce, 654.
Pilling, 1026.
Joseph, 2401.
Easton & Tattersall, 3624.
Böhringer, 3639.
Taylor, 3725.
James, 3771.

**Ventilating safes:**
Hobbs & Hart, 1611.

**Ventilating ships:**
Newell, 142.
Wright, Broom & Bruce, 654.
Boyle, 1296.
Ridsdale, 1524.
Viehoff & Voss, 2151.
Joseph, 2401.
Christy, jun. (*Tucker*), 2455.
Thomas, 2575.
Atkin, 3051.
Papier, 3521
Allan, 3761.
Boyman, 3840.
Clark (*Reilly*), 3856.
Rydill, 3901.

**Ventilating tunnels:**
Pochet & Lemoine, 1232.
Joseph, 2401.

**Ventilating wearing-apparel:**
Mercier, 1733.

**Ventilator valves used in paper making.** *See* "Boilers (paper makers')."

**Ventilators (rotary):**
Carey, 1687.
Lake (*Harris*), 1783.
Lake (*Chèradame, Le Dreux & Oursel*), 2053.

**Viaducts.** *See* "Bridges."

**Vices:**
Stephens, 1341.
Brookes (*Farjon*), 1355.
Livsey (*Hall*), 3219.

**Vinegar:**
Johnson (*Leconte*), 404.
Garton, 899.
Newton (*Turner & Vanderpool*) 1905.
Johnson (*Leconte*), 3956.

**Vitriol.** *See* "Acids."

**Voltaic batteries.** *See* "Electricity."

**Voting or ballot apparatus:**
Davis, 320.
Harrison & Rotter, 334.
Oppenheimer, 1253.
Briggs, 1343.
Gray, 1735.
Brakell, 2256.
Pinches, 2409.
Bond, 2566.

**Vulcanite.** *See* "India-rubber."

## W.


**Wadding:**
Blamires, Blamires & Marsden, 708.
Lake (*Kendall*), 2740.

**Wads.** *See* "Cartridges."

**Waggons used in cachuchos.** *See* "Chemical plant."

**Waists:**
Bousfield (*Heaton*), 2707.

**Walking sticks:**
Doudney & Adams, 178.
Richards, 922.
Engel, 1338.
Barnley, 2467.
Clark (*Aubertin & Hannart*), 3441.
Clark (*Dumonthier*), 3917.

**Walls:**
Stone, 203.
Fothergill & Rumble, 668.
Spence (*Coutelier*), 1108.
Stone, 1115.
Norton, 1149.
Norton, 1151.
Turner, 1396.
Tucker, 1669.
Thwaites, Fondeville & Bertin, 2004.
Smith (*Alliger*), 2246.
Holmes, jun., 2539.
Broughton, 2438.
Sebille, 2491.
Grainger, 2556.
Knott, 3154.
Glazier, 3278.
Faulkner, 3531.
Lloyd, 3638.
Magnus, 3831.

**Warming beds and couches.** *See* "Heating or warming."

**Warping and beaming machines:**
Wilkinson, 371.
Lancaster & Bullough, 663.
Richard, 1271.
Lake (*Locke & Locke*), 1676.
Todd, 1974.
Heyes & Entwistle (*Wilson & Hunter*), 2400.
Mackenzie, 2645.
Wilkinson, jun., Fillingham & Pardoe, 2961.
Sutcliffe & Parker, 3027.
Brimelow, 3353.
Wilkinson, jun., Fillingham, Pardoe & Glover, 3597.
Fillingham & Pardoe, 3669.
Wilkinson, 3703.

**Washers.** *See* "Nuts."

**Washing and rinsing bottles:**
Lofts, 1446.

**Washing and separating coals:**
Green (*Utsch*), 2412.
Evrard, 2720.

**Washing and wringing fabrics, fibres, yarns, &c.:**
Hughes (*De Labarre*), 191.
Asquith, 209.
Petrie, jun., 307.
Lake (*Myers*), 503.
Browne (*Count of Montebello*), 510.
Pepper, 597.
Thomas & Taylor, 795.
Lake (*Stern*), 979.
Worrall, 1024.
Williamson, 1045.
Worrall & Kershaw, 1069.
Davey, 1211.
Barlow (*Renard*), 1613.
Cross, 1841.
Davidson, 1896.

**Washing fabrics, &c.—*cont.***
Salt, 1901.
Gledhill, 2388.
Denne & Hentschel, 2429.
Routledge, 2431.
Walton, 2620.
Cropper, 2682.
Wilkinson, 2698.
Hughes (*Daudenart & Verbert*), 2746.
Atkinson, 2750.
Pigott, 2844.
Rydill, 2886.
Wilkinson, jun., Fillingham & Pardoe, 2961.
Rydill, 2979.
Dickson, 2995.
McNaught & McNaught, jun., 3046.
Winne & Winne, 3249.
Mills (*Post*), 3318.
Towle (*Dodge & Messrs. Welch*), 3373.
Gedge (*Palau*), 3465.
Wilkinson, jun., Fillingham, Pardoe & Glover, 3597.
Fillingham & Pardoe, 3669.
Harvey, 3746.
Hutchinson, 3951.

**Washing grain or seeds:**
Johnson, 1455.

**Washing oil-cloth:**
Haselfine (*Osborn*), 2414.

**Washing ores and minerals:**
Benson & Hetherington, 972.
Holcroft & Lackersteen, 1156.
Mathews (*Hancock*), 2051.
Walker, 2206.
Green (*Utsch*), 2412.
Dann (*Rickard*), 2559.
Browning, 3006.
Rowe, 3173.

**Washstands.** *See* "Lavatories."

**Waste boiler plates (utilizing).** *See* "Boiler plates."

**Waste fibres and yarn.** *See* "Rags."

**Watch keys.** *See* "Clocks."

**Water distributors:**
Barton, jun., 755.
Barlow (*Naegeli*), 1203.
Paget, 1219.
Vincent, 1707.

**Water level indicators.** *See* "Gauges."

**Water (obtaining fresh):**
Hildesheim, 78.
Warneck, 2177.
Lake (*Brooks*), 2425.
Alleyne, 2930.
Trémaine 2966.

**Water troughs.** *See* "Troughs."

**Water tuyeres.** *See* "Tuyeres."

**Waterclosets and commodes:**
Gowans, 87.
Ronald & Farmer, 89.
Simpson, 146.
Gatty, 253.
Bostel, 269.
Frances, 427.
Carter, 465.
Carr, jun., 470.
King, 603.
Blundell, Messrs., 607.
Wigner & Williamson, 738.
Phillips, 811.
Wright, 1005.
Kyle, 1095.
Chandler, Messrs., 1261.
Brookes (*Farjon*), 1355.
Morris, 1386.

**Waterclosets, &c.—*cont.***
Ross, 1414.
Robey, 1421.
Carter & Carter, 1434.
Preston, Prestige, Preston & Prestige, 1438.
Lake (*Daniels*), 1500.
Costa & Lawrie, jun., 1593.
Newton (*Thompson*), 1864.
Denham, Messrs., 1936.
Wright, 1940.
Baker, 1996.
Pullen, sen., & Pullen, jun., 2163.
Sutcliffe & Sutcliffe, 2194.
Synge, 2227.
Tylor, 2292.
Banner, 2303.
Cawse, 2423.
Synge, 2496.
Scott, 2538.
Caffall, 2622.
Johnson (*Renaux*), 2624.
Shanks, 2643.
Synge, 2683.
Standen, 2687.
Davies, 2838.
Allardyce, 2891.
Bailey, 2954.
Pontifex & Barton, 3033.
Underhay, 3038.
Sweet, 3082.
Greig, 3091.
Cameron & Smith, 3127.
Aldridge, 3157.
Target, 3215.
Glazier, 3278.
Manning, 3356.
Waide, 3366.
Towle (*Dodge & Messrs. Welch*), 3373.
Newton (*Thompson*), 3411.
Morgan, Macaulay & Waide, 3439.
Holcroft, 3456.
Blogg, 3489.
Wright, 3513.
Forrest & Hayes, 3542.
Clarke, 3726.
Scott, 3755.
King, Messrs., 3760.
Abel (*Booroff*), 3788.
Shanks, 3796.
Spencer, 3804.
Target, 3821.
Penn, 3871.
Morrell & Proctor, 3888.
Badin, 3913.

**Waterfalls (producing and utilizing artificial):**
Lake (*Mot & Weaver*), 734.

**Watering and irrigating land:**
Denton & Field, 742.
Outridge, 1217.
Bonneville (*Gache*), 1290.
Brown, 2279.
Gedge (*Rives*), 2324.
Trémaux, 2966.
Davies, 3012.
Scott, 3755.

**Watering plants in greenhouses:**
Rendle, 569.

**Watering streets:**
Dyne & Dyne, 170.
Brown, 1511.
Davies, 3012.

**Waterproofing; waterproof fabrics:**
Lake (*Morris*), 162.
Floyd, 225.
Blundell, 353.
Gallagher, 551.
Gatty, 561.
Vanel, 606.
Barnett, 651.
Johnson (*Ruggieri*), 674.
Nicoll, 836.
Don & Wright, 970.
Gedge (*Tourenó*), 1120.
Gray (*Renoz*), 1215.
Witty, 1248.
Wyerns, 1286.

**Waterproofing, &c.—*cont.***
Turner & Davies, 1512.
Orr, 1697.
Mercier, 1783.
White, 1978.
Thwaites, Fondeville & Bertin, 2004.
Mills (*Dorlan*), 2020.
Percy, 2062.
Magaud, 2113.
Abbott, 2248.
Denne & Hentschel, 2385.
Daft, 2411.
Mudford, 2582.
Walton, 2620.
Lasché, 2893.
Glaxier, 3278.
Bagley, 3421.
Bolton, 3643.
Gedge (*Gaudefroy, fils*), 3712.
Clark (*Loiseau*), 3818.
Thompson, 3874.
Harrington, 3959.

**Water supplying to steam-boilers.** *See* "Steam-boilers."

**Water supplying to towns:**
Underhay, 670.
Rosier, 1166.
Morris, 1386.
Hack, 1683.
Stoney, 2372.
Trémaux, 2966.
Davies, 3012.
Bennett, 3271.

**Waterwheels; hydraulic motive-power:**
Hanscom, 181.
Higginson, 202.
Burr (*Prall*), 253.
Wright, Broom & Bruce, 654.
Lake (*Mot & Weaver*), 734.
Gedge (*Piau*), 953.
Wright, 1017.
Teal, 1190.
Clark (*Lewis*), 1210.
Hughes & Spooner, 1315.
Fielding, 1316.
Lake (*John*), 1332.
Lake (*West*), 1408.
Robertson, 1675.
Tommasi, 1738.
Searle, 1778.
Lake (*Harris*), 1783.
Sauvée (*Duclos*), 2024.
Lake (*Harris*), 2188.
Oldroyd, 2359.
Church, 2469.
Hooper, 2749.
Henry (*Bellotti & Petvini*), 2794.
Hill, 2839.
Gedge (*Loir*), 2921.
Davies, 3012.
Robertson, 3134.
Newton (*Bloch*), 3155.
Lake (*Critchlow*), 3229.
Lake (*Mekarski*), 3238.
Alley, 3342.
Barr, 3343.
Church, 3395.
Stanley, 3409.
De Latouche, 3468.
Church, 3556.
West, 3562.
Hamilton, 3738.
Louche, 3752.
Brown, 3816.
Rendel, 3826.
Urquhart & Lindsay, 3836.
Kirk, 3911.

**Wax:**
Cox & Cox, 2204.

**Wearing-apparel; outer garments for gentlemen; clerical costumes:**
De Montoison, 12.
Blundell, 353.
Barnett, 651.
Darlow, 1234
Holmes, 1544.
Darlow, 1665.
Mercier, 1783.

**Wearing-apparel, &c.—*cont.***
De Montoison, 2001.
Bidder, Lamb & Scrivener, 2149.
Clark (*Dubois*), 2219.
Schor, 2444.
West, 2722.
Middlemass, 2757.
Owens & Puzey, 3176.
Darlow, 3221.
Laurence, 3391.
Welton, 3823.

**Weaving carpets, velvets and other pile fabrics:**
Shaw, Ditchfield & Knowles, 122.
Newton (*Webster & Meserole*), 344.
Farran, 806.
Molesworth, 833.
Barlow (*Shinn*), 871.
Tongue (*Crompton*), 956.
Clews, 1269.
Tongue (*Crompton*), 1275.
Firth, Messrs., 1297.
Smith & Kenyon, 1351.
Oldroyd, Oldroyd & Johnson, 1444.
Dixon, Hughes & Maddox, 1526.
Bélicard, 1674.
Hall & Hobson, 1701.
Holdsworth, 2095.
Bonneville (*Charton*), 2133.
Dixon, 2394.
Mackenzie, 2645.
Delmar, 2729.
Franklin, 2825.
Murdoch (*Baudot*), 2837.
Morel & Riboulet, 3098.
Rouse, 3200.
Tebbutt, 3315.
Ramsden, 3520.
Cross, 3709.

**Weaving (combs, reeds or sleys):**
Henry (*Dupa*), 1310.
Taylor, 1809.
Rippin & Rippin, 2775.
Fleming & Milner, 3337.

**Weaving hair cloth and substitutes:**
Boyd & Henderson, 261.
Symington, 3045.

**Weaving (healds).** *See* "Healds."

**Weaving narrow fabrics; ribbon looms:**
Lake (*Day*), 10.
Newton (*Reimann*), 216.
Lake (*Martin*), 501.
Bélicard, 1674.
Mackenzie, 2645.
Pearson & Mills, 2796.
Collier, 3786.

**Weaving (pickers and temples):**
Smith, 1.
Dixon, 1527.
Marsden, 1741.
Taylor, 1809.
Rawson, 1959.
Ingham, 2475.

**Weaving plain, figured and double fabrics; jacquards and looms; woven fabrics:**
Paraire, 126.
Oldroyd & Oldroyd, jun., 167.
Walker, 196.
Bell, 383.
Nuttall & Nuttall, 487.
West, 591.
Ayrton & Brown, 598.
Crighton, Messrs., 808.
Farran, 806.
Johnson & Hatchman, 815.
Slevier, 843.
Clark (*Short*), 1048.
Porritt, 1107.
Ingham, 1116.
Catlow, 1159.
Smith (*Cases & Son*), 1178.
Firth, Messrs., 1297.
Henson & Poole, 1424.

**Weaving plain, &c.—*cont.***
Richardson, 1468.
Ingham & Shaw, 1535.
Shackleton & Binns, 1599.
Gedge (*Petit-Toulouse*), 1737.
Taylor, 1809.
Merrylees, 1921.
Comey & Turner, 1927.
Ward & Rouse, 1942.
Harris & Holding, 1969.
Gomersall & Gomersall, 2063.
Linney, 2162.
Woodman, 2199.
Richardson, 2208.
Catlow & Overton, 2336.
Clark (*De Gonzenbach-Escher*), 2404.
Macaulay, 2570.
Mackenzie, 2645.
Peake, 2658.
Keighley, 2776.
Pearson & Mills, 2796.
Murdoch (*Baudot*), 2837.
Clark (*Vincenzi and Messrs Gellardi*), 2898.
Rowe, 2969.
Taylor & Duckers, 3036.
Symington, 3045.
Booth, 3106.
Smith (*Vigoureux*), 3145.
Rouse, 3200.
Knowles, 3235.
Speirs, 3237.
Wilke, 3301.
Lyall, 3377.
Snape, 3450.
Farran, 3527.
Smith, 3561.
Mosley, 3637.
Collier, 3786.

**Weaving revolving shutters of bands or ribbons of metal:**
Hyatt, 40.

**Weaving (shuttles and weft forks):**
Leburn, 18.
Hartley, 35.
Stokes & Stokes, 156.
Lake (*Brierly & Brierly*), 218.
Lake (*Terrell, Allen & Busch*), 215
Lake (*Martin*), 501.
Nuttall (*Isherwood*), 531.
White (*Griffin & Maquin*), 768.
Clark (*Heilmann*), 757.
Carr, 858.
Cook, 1530.
Kenyon, 1767.
Muir & McIlwham, 2062.
Mulholland, 2552.
Hughes (*Stever, Boughton & Newton*), 2683.
Wilke, 3301.
Lyall, 3377.
Platt, 3748.

**Weaving straps or belts for machinery:**
Mudford, 2583.

**Weaving ("tieing-in" warps):**
Shackleton & Binns, 1599.
Gillibrand & Walmsley, 1988.

**Webs (elastic gusset):**
Molesworth, 833.
Daft, 2411.

**Webs (flexible metallic):**
Rowat, 1578.

**Weeders.** *See* "Horticulture."

**Weft forks.** *See* "Weaving shuttles."

**Weighing-machines; indicating weight:**
Ayre, 177.
Napier, 402.
Newton (*Emery*), 406.
Baxter, 893.

**Weighing-machines, &c.—*cont.***
King, 1148.
Groussin, 1208.
Furness, 2009.
Napier, 2639.
Vivian & Mackenzie, 3251.
Hughes (*Systermans*), 3406.

**Weirs:**
Stones & Lowcock, 2520.
Field, 3348.
Smith, 3577.

**Welding metals.** *See* "Metals (forging)."

**Wells:**
Beaumont & Appleby, 392.
Jensen (*Mortensen*), 791.
Shepherd & Stuckey, 2756.
Trémaux, 2966.

**Wet gas meters.** *See* "Meters."

**Whalebone.** *See* "Bones."

**Wharves.** *See* "Buildings."

**Wheat.** *See* "Grain and seeds."

**Wheelbarrows.** *See* "Barrows."

**Wheels for carriages; railway and tramway wheels:**
Silvester (*Silvester*), 5.
Schemioth, 93.
Clark (*Doty, Miltimore, Mickel & Mickel*), 220.
Cross, 337.
Williamson & Williamson, 497.
Whitham, 582.
Weekes, 599.
Washburn, 630.
Minns, 627.
Wright, Broom & Bruce, 654.
Abel (*Durfee*), 685.
Curtis, 746.
Whitworth, 782.
Brewer (*Frye*), 1011.
Webster, 1027.
Midelton, 1227.
Edwards, 1287.
Hunt (*Garnier & Hessenland*), 1381.
Lake (*West*), 1408.
Johnson (*Fitts*), 1417.
Lloyd, 1482.
Harris (*Lyman*), 1568.
Lake (*Woodbury*), 1619.
Johnson (*Harrison, jun.*), 1756.
Bacott (*Wilson*), 1759.
McNeile, 1781.
Zamoyski & Jackson, 1782.
Lyttle, 1811.
Bethune, 2030.
Marchant, 2068.
Adams, 2076.
Hyde, 2127.
Hutchinson, 2160.
Krieger, 2173.
Rieber, 2249.
Hornsby, Phillips & Innocent, 2364.
Hadfield, 2396.
Randolph & Harvey, 2407.
Murphy, 2647.
Curtis, 2699.
Sax, 2834.
Abel (*Orlowski*), 2883.
Lake (*Blackman*), 2906.
Langham, jun., & Owen, 3121.
Mc Lennan, 3151.
Edwards, 3166.
Stanley, 3172.
Davies, 3347.
Longridge, 3259.
Horton, 3286.
Lake (*Nicholson*), 3392.
Zamoyski & Jackson, 3458.
Brown, 3500.
Hadfield, 3524.
Spencer & Scott, 3694.
Lake (*Woodbury*), 3778.
Cross, 3928.
Johnson (*Vreeland*), 3947.
Spencer & Smith, 3964.

**Wheels for machinery; pinions:**
Schüssler & Wagner, 333.
Hodgson, 447.
Roberts, 623.
Lancaster & Bullough, 683.
Johnson, 732.
Benson, 863.
Nicholson, 1021.
Webster, 1027.
Clark (*Massey*), 1351.
Whinyates, 1490.
Ransome, 1507.
Jackson & Jackson, 1601.
Robertson, 1675.
Lake (*Locke & Locke*), 1676.
Weston, 1776.
Porter, 1820.
Derham & Thairlwall, 1955.
Gillott & Copley, 2000.
Adams, 2076.
Nicholson, 2104.
De Negri, Herrmann & Guest, 2158.
Clark, 2176.
Lake (*Silver*), 2185.
Hadfield, 2396.
Griswold, 2489.
Harfield, 2512.
Hayes, 2564.
Mackenzie, 2645.
Hughes, 2882.
Ransome, 2894.
Murdoch (*Bède & Co.*), 2906.
Boynton, 2924.
Elce & Arundel, 3025.
Binns, 3238.
Clark (*Ritchel & Allen*), 3399.
Johnson (*Hunter & Osborn*), 3486.
Hadfield, 3524.
Rigg, 3811.
Hughes (*Mallett Manufg. Co.*), 3832.
Borthwick, 3864.
Anderson, 3963.

**Whips:**
Doudney & Adams, 178.
Don & Wright, 970.
Engel, 1388.
De Negri, Herrmann & Guest, 2158.
Clark (*Dumonthier*), 3917.

**White lead.** *See* "Metallic salts."

**Whiting.** *See* "Lime."

**Wicks for lamps:**
Fish, 2715.

**Winches.** *See* "Hoists."

**Wind guards.** *See* "Flues."

**Winding:**
Ennor, 271.
Wilkinson, 371.
Bayley & Stott, 581.
Newton (*McComb & Mahan*), 1058.
Balfe, 1168.
Hunt, 1199.
Conlong & Smith, 1717.
Stubbs, 1790.
Robertson, Orchar, Muir, & Mc Ilwham, 1867.
Kirby, 1887.
Todd, 1974.
Linney, 2162.
Abel (*Dreyscharff*), 2229.
Hunter & McCloy, 2661.
Crabtree, 2676.
Wibberley, 2760.
Boyd, 2986.
Pooley & McDine, 3011.
Sutcliffe & Parker, 3027.
Coleby, 3070.
Crabtree, 3135.
Bayley & Stott, 3174.
Laycock & Shuttleworth, 3303.
Rushton, 3334.
Howard & Bousfield, 3516.
Boutherin, 3573.
Wilkinson, jun., Fillingham, Pardoe & Glover, 3597.
Kernaul, 3768.
Kirk, 3911.

**Winding engines for colliery purposes.** *See* "Mining."

**Windlasses.** *See* "Hoists."

**Window blinds; cleaning blinds:**
Titley, 386.
Williams, 515.
Hudson, 543.
Roberts, 623.
Sargent, 748.
Henson & Poole, 1424.
Scantlebury, 1860.
Walton, 1972.
Peattie, 2042.
Sutcliffe 2112.
Goold, 2182.
Lake (*Hall*), 2228.
Haseltine (*Osborn*), 2414.
Stevens & Cullum, 2727.
Hodkinson & Clarke, 2884.
Moss & Crighton, 3024.
Hitchin, 3162.
Young, 3606.
Burstow, 3948.

**Windows, sashes and skylights; window fasteners and cleaners:**
Hyatt, 25.
Dominy & Russell, 36.
Abraham, 249.
Lloyd, 322.
Cutler, 346.
Pocock, 451.
Laurie, 558.
Ekman, 834.
Walton, 892.
Hall, 1445.
Lloyd, 1482.
Henderson, 1513.
Ridsdale, 1524.
Burstow, 1622.
Ballardie, 1774.
Stuart, 1777.
Walton, 1972.
Bewsher, 1981.
Peattie, 2042.
Holbrook, 2052.
Sutcliffe, 2112.
Meakin, 2273.
Haseltine (*Osborn*), 2414.
Stevens, 2541.
Anderson, 2655.
Camroux, 2708.
Morgan, 2806.
Mann, 2908.
Edwards, 3166.
Duggin (*Crossman & Rice*), 3326.
Hopkinson, 3339.
Burstow, 3589.
Ager, 3854.
Lees, 3966.

**Wine; wine bins; clearing wine:**
Garton, 899.
Burrow & Burrow, 1846.
Johnson (*Nezeraux*), 2054.
Gill, 2261.
Lake (*Kersting*), 3737.

**Winnowing machines:**
Corbett, 1630.
Clark, 2031.

**Wire tramways.** *See* "Tramways."

**Wire-working; wire ropes; wire fabrics:**
Robson, 86.
Lyttle, 109.
Stone, 203.
Walton, 259.
Pigott, 286.
Clark (*Edge*), 414.
Dobson, Rushton & Dobson, 434.
Truman, 482.
Musgrave & Musgrave, 505.
Fletcher, 549.
Barlow, jun. (*Brown*), 781.
Mc Evoy, 832.
Blackly, 847.
Walton & Fallows, 1008.
Webster, 1027.

**Wire-working, &c.—*cont.***

Lake (*Mann*), 1064.
Walton, 1105.
Prince, 1259.
Highton, 1279.
Lyttle, 1320.
Turner, 1396.
Lofts, 1446.
Siemens, 1473.
Cottrill, 1502.
Mee, 1549.
Rowat, 1578.
Doria, 1625.
Doubelt (*Lavoff*), 1649.
Norton, 1662.
Bélicard, 1674.
Gilbert, 1753.
McFarlane, 1779.
Doubelt (*Kniaghininsky, Sewastganoff & Dornowo*), 1822.
Lake (*Hiler*), 1847.
Davis, 1869.
Beale, 1893.
Woods & Woods, 1908.
Edwards (*Thornton*), 1969.
Chambers, 2103.
Bonneville (*De Mestre*), 2211.
Mills (*Heyl & Brehmer*), 2291.
Towle (*Pratt*), 2305.
Hughes (*Frary*), 2307.
Pickering, 2381.
Highton, 2547.
Mudford, 2582.
Cunningham & Cunningham, 2702.
Lake (*Laughland*), 2734.
Welch, 2763.
Rath, 2805.
Dick & Dick, 2827.
Holt, 2857.
Price & Wilkins, 2877.
Wadsworth, 2927.
Chapin, 2973.
Henry (*Rogers*), 2967.
Kayser, 3048.
Newton (*Esmp*), 3056.
Lyttle, 3206.
Plimsoll, 3281.
Law & Law, 3283.
Newman & Bartholomew, 3329.
Fleming & Milner, 3337.
Price (*Hasenclever*), 3370.
Thomas, 3462.
Brunner (*Schulz & Heyl*), 3470.
Ayres, 3787.
Cornforth & Dangerfield, 3819.
Bedson, 3941.
Johnson (*Dodge*), 3969.

**Woad.** *See* "Dyes."

**Wood and veneers; artificial wood:**

Hyatt, 40.
Cunningham, 55.

**Wood, &c.—*cont.***

De Negri, 76.
Hotchkiss, 207.
Ungerer, 257.
Last, 285.
Lake (*Hotchkiss*), 345.
Pace, 369.
Lake (*Hitchcock*), 405.
Granville, 605.
Vanel, 606.
Brode & Brode, 804.
Lanteigne, 848.
Stevenson, 1003.
Lake (*Richardson, Hacker & Blake*), 1175.
Cowper, 1265.
Pace & Howard, 1285.
Ellis, 1360.
Wise (*Huebscher*), 1374.
Davey, 1443.
Menzies & Davies, 1476.
Ransome (*Richards*), 1501.
Worssam, 1503.
Croskey, 1533.
Riddell, 1690.
McFarlane, 1779.
McNeile, 1781.
Johnson (*Wells*), 1800.
Lee, 1804.
Caselton & Toogood, 1920.
Noble, 2006.
Mc Laren, 2021.
Lake (*Smith*), 2065.
Hill, 2097.
Gedge (*De Courson, fils*), 2150.
Mills (*Heyl & Brehmer*), 2291.
Probert, 2398.
Blyth & Southby, 2417.
Emmens, 2451.
Barlow (*Davies*), 2457.
Robson, 2470.
Noad, 2610.
Ransome (*Richards*), 2674.
Hughes (*Wilbaux*), 2833.
Ransome, 2894.
Womersley, 3141.
Rave, 3270.
Allison, 3320.
Bagley, 3421.
Rose, 3453.
Worssam, 3442.
Seitz, 3446.
Oliver, 3623.
Cunningham, 3632.
Sinclair, 3716.
Hamilton, 3756.
Haseltine (*Morong*), 3759.
Denis, 3801.
Holker, 3851.
Robinson & Smith, 3858.
Stewart, 3860.
Copland, 3925.

**Work baskets and boxes:**

Harper, 75.
Hébert, 3651.

**Wrecks (raising).** *See* "Raising ships."

**Wrenches; spanners:**

Schlesinger (*Dixon*), 98.
Steele, 299.
Swindells & Wormald, 478.
Craddock, 1326.
Bousfield (*Heaton*), 1591.
Eades & Eades, 2166.
Chapin, 2424.
Barlow (*Gatty*), 2334.

**Wringing.** *See* "Washing fabrics."

**Wristbands.** *See* "Shirts."

**Writing cases, tablets and slates:**

Everickx, 260.
Bowden, 1493.
Helmore, 1824.
Wagner, 3437.
Cowie, 3916.

**Writing instruments (mechanical):**

Holten (*Hansen & Jürgensen*), 823.
Rossignol, 990.
De Zuccato, 1963.
De Dedulin, 2239.
Young, 3548.

## X.

**Xylodine:**

Davey, 1443.

## Y.

**Yachts:**

Ridsdale, 1534.
Hollick, 1672.
Johnson (*Jackson*), 3387.
Ashbury, 3563.

**Yarns:**

Fish & Wotherspoon, 7
Brierley & Stott, 709.
Ballantyne, 3846.

15 & 16 VICTORIÆ, Cap. 83. Sec. XXXII.

# SUBJECT-MATTER INDEX

OF

# PATENTS APPLIED FOR AND PATENTS GRANTED,

## For the Year 1873.

---

Printed and Published by Order of the Commissioners of Patents

UNDER THE

ACT of 15 & 16 VICTORIÆ, Cap. 83. Sec. XXXII.

BY BENNET WOODCROFT, F.R.S.

CLERK TO THE COMMISSIONERS OF PATENTS.

LONDON:

PRINTED BY GEORGE EDWARD EYRE AND WILLIAM SPOTTISWOODE,
PRINTERS TO THE QUEEN'S MOST EXCELLENT MAJESTY.

PUBLISHED AT THE OFFICE OF THE COMMISSIONERS
OF PATENTS FOR INVENTIONS,
SOUTHAMPTON BUILDINGS, HOLBORN.

1874.

# SUBJECT-MATTER INDEX

OF

# PATENTS APPLIED FOR AND PATENTS GRANTED

## For the Year 1873.

[The names printed in *Italic* are those of the persons by whom the inventions have been communicated to the Applicants for Letters Patent. The consecutive numbers of the Applications, which are prefixed to the Abridgments contained in this volume, follow the names.]


## A.

**Abdominal supports:**
Daniels, 2631.

**Acidity in beer (removing).** *See* "Brewing."

**Acid-proofing fabrics:**
Mills (*Sim*), 3763.

**Acids; acid bottles; acid pumps:**
Spence, 50.
Codd, 75.
Clark (*Audouin & Pelouze*), 109.
Bentley & Garth, 145.
Lee, 695.
Barlow (*Galland*), 827.
Kuhlmann, 847.
Jones, 894.
Hughes (*Daudenart & Verbert*), 958.
Clark (*Nichols*), 1205.
Fletcher, 1784.
Fitz Gerald & Molloy, 2102.
Saldanha, Paes & Hopcraft, 2484.
Kenyon & Swindells, 2739.
Crookes, 2790.
Johnson (*Wainwright, Wiswell & Hurlbut*), 2840.
Pyfe & Bowers, 2873.
Dixon (*Cobley*), 2981.
Hughes (*Daudenart & Verbert*), 3013.
Sprengel, 3189.
Johnson (*David*), 3190.
Dale & Dale, 3191.
Wirth (*Beins*), 3194.
Hughes (*Blythe*), 3437.
Young 3654.
Weldon, 3805.
Kenyon & Swindells, 4013.
Arrott, 4164.

**Acorns and beech nuts (treating):**
Liebert, 1162.
Liebert, 3139.

**Advertising:**
Parker-Rhodes, 173.
Sipriot, 479.
Noad, 539.
Sauret, 887.
Raimond, 967.
Anderson, 1200.
Glembowiecki, 1785.
De Bastos, 1856.
Bonnewell, 2606.
Tongue (*Du Chastaingt & Marville*), 2668.
Anthony, jun., 2697.
Holyoake, 3075.
Holyoake, 3250.
Cribb & Rackham, 3326.
Delavault, 3987.
Vaughan (*Morse*), 4154.

**Aërating; filling and withdrawing aërated liquids:**
Thwaites & Stephens, 97.
Farrow, 218.
Wharldale, 327.
Leach, 358.
Ross, 750.
Paterson, 954.
Gilbee (*Mégret*), 959.
Vignier, 1347.
Geraut, 1666.
Risque, 1939.
Kay & Kay, 1976.
Betts, 2240.
Gooding, 2242.
Schlesinger (*Grout*), 2312.
Smyth, 2728.
Brown, 2916.
Wirth (*Beins*), 3194.
Edwards, 4114.
Perrett, 4249.
Horner, Horner & Sibley, 4252.
Codd & Foster, 4268.

**Aërial machines; balloons:**
Lüdeke, 1806.
Vacherot, 1824.
Brown, 2346.
Godge (*Préville*), 2396.
Martin, 2776.
Wirth (*Beins*), 3194.
Fleury, 3309.
Boyman, 3515.
Vaughan (*Morse*), 4154.
Gaveau, 4255.
Browne, 4279.

**Aërial tramways.** *See* "Tramways."

**Ageing wines and liquors:**
Johnson (*David & Fichet*), 1222.
Haseltine (*Pope & Sawyer*), 1641.
Johnson (*David*), 3190.
Griffin, 3450.

**Agitators.** *See* "Mixing."

**Air and gas engines; pneumatic motive-power:**
Cole & Acton, 110.
Salmon, 147.
Milner, 196.
Wilson, 241.
Foster, 252.
Sudlow, 272.
Rydill, 329.
Robertson, 448.
Ramsden, 519.
Edwards, 541.
Adams, 552.
Allfrey, 830.
Adams & Jenkins, 963.
Darlington, 1168.
Critchlow, 1351.
Williamson & Parsell, 1596.
Plessner, 1604.
Imray (*Otto*), 1628.
Wood, 1648.
Hughes (*Bushnell & Merriman*), 1854.

**Air and gas engines, &c.—*cont.***
Imray (*Otto*), 1946.
Martin, 1953.
Siemens (*Siemens*), 2246.
Cole & Acton, 2276.
Greey, 2338.
Brown, 2346.
Godge (*Préville*), 2396.
Salmon, 2419.
Weatherdon, Colborne & Barrington, 2462.
Gamboni, 2469.
Aytoun, 2559.
Brachigny & Deschamps, fils, 2782.
Jones, 2797.
Johnson (*Henry*), 2975.
Anderson, 3163.
Adams, 3164.
Hughes (*Henrard & Raymond*), 3340.
Wood, 3395.
Haseltine (*Wyss & Studer*), 3487.
Boyman, 3515.
Lake (*Rourk*), 3553.
Hyatt, 3684.
Holman, 3699.
Anderson & Harrison, 3812.
Lake (*Fogarty*), 3848.
Coldwell, 3870.
Plessner, 3934.
Perch & Higgs, 3977.
Southwood & Mathews, 4002.
Johnson (*Schmid*), 4071.
Turner, 4088.
Heaton & Heaton, 4174.
Clark (*Douglass*), 4247.

**Air as applied in cleaning boiler tubes.** *See* "Tube cleaners."

**Air pumps; air exhausters; compressing air:**
Stroudley & Drummond, 6.
Lake (*Krausse*), 80.
Cole & Acton, 110.
Salmon, 147.
Larue, 172.
Robertson, 248.
Lake (*Smith*), 279.
Lake (*Proudfoot*), 634.
Brakell, 726.
Barlow (*Galland*), 827.
Smith, 906.
Attwood, 1071.
Barlow (*Galland*), 1129.
Wise (*Greindl*), 1252.
Ashworth, 1569.
Bailey, 1706.
Abel (*Westinghouse, jun.*), 1735.
Imray (*Fayol*), 1852.
Hughes (*Bushnell & Merriman*), 1854.
Martin, 1953.
Paget (*Schoubersky*), 1963.
Brotherhood, 2003.
Hatschek, 2042.
Ditchfield, Watson & Childs, 2093.
Lake (*Jones & Cooley*), 2220.
Cole & Acton, 2276.
Sturgeon, 2279.
Wirth (*Scheller & Berchtold*), 2380.

Air pumps, &c.—*cont.*
Gamboni, 2469.
Cohrs, 2630.
Smith, 2787.
Beale, 3138.
Wirth (*Windhausen*), 3142.
Liernur, 3168.
Robertson, 3445.
Owen, 3506.
Bower & Bower, 3528.
Miller, 3562.
Holman, 3699.
Coldwell, 3870.
Steel, 3890.
Adair, 3965.
Newton (*Douillard*), 3970.
D'Humy, 4000.
Mather (*Lavater*), 4017.
Ditchfield, Watson & Childs, 4095.
Steel, 4110.
Newton (*Waldenburg*), 4151.
Weatherby, 4161.
Browne, 4279.

Air supplying in dressing and treating flour and grain:
Fairclough & Fairclough, 350.
Lake (*Parkyn*), 396.
Dana (*Smith*), 1120.
Lacroix, 1152.
Smith, 1224.
Dobelle, 1551.
Guenard, 2075.
Dana (*Smith*), 2274.
Murdoch (*Haggenmacher*), 2547.
Wetherill, 2682.
Andrews, 2721.
Lake (*Squier & Squier*), 2767.
Gedge (*Alexandre-Balat*), 2929.
Buchholz, 3068.
Keohler & Ferguson, 3388.
Jensen (*Glen*), 3855.
Walker, 4258.
Allin, 4266.

Air supplying in manufacturing processes:
Harrison, 1.
Cowles, 99.
Bentley & Garth, 145.
Broel, 385.
Harrison, 485.
Emmens, 576.
Robertson, 708.
Wise (*Juengling*), 807.
Phillips, 831.
Wright, 823.
Harrison, 848.
Baerlein, 913.
Gardner, 963.
Gardner, 985.
Harrison, 1072.
Clark (*Badt*), 1193.
Johnson (*David & Fichet*), 1222.
Clark (*Hillman*), 1227.
Morgan-Brown (*Hersey, Hersey & Gray*), 1233.
Maybery, 1236.
Edmunds, jun., Wood & Wright, 1355.
Lutschaunig & Ricketts, 1895.
Lake (*Carter*), 1982.
McAvoy, 2152.
Louttit, 2174.
Hunter (*Berry, Randolph & Eichbaum*), 2177.
Ross, 2214.
Petrie, jun., 2272.
Salmon, 2419.
Shaw, Sleath & Holt, 2596.
Wetherill, 2682.
Maitland (*Hoffman*), 2834.
Stone, 3143.
Voigt, 3185.
Blake (*Cutting*), 3243.
Gardner (*Frans*), 3264.
Muir, 3319.
Branson, 3456.
Smith & Fountain, 3809.
Fuller (*Ashley*), 3973.
Fuller (*Ashley*), 3974.

Air supplying in raising beer. *See* "Beer-engines."

Air supplying in signalling:
Guattari, 453.
Lyon, 523.
Sanders (*Sanders*), 625.
Sumners & Fraser, 1408.
Abel (*Westinghouse, jun.*), 1735.
Stapleton, 2402.
Canning & Mayor, 2554.
Spong & Spong, 2754.
Truman, 3468.

Air supplying or ventilating. *See* "Ventilating."

Air supplying to furnaces, forges, stoves, ranges, flues and kilns:
Croll, 45.
Garon, 62.
Newton (*Goodrich, Hillman & Goodrich*), 90.
Kininmonth, 102.
Stell, 111.
Asbury, 139.
Quelch, 141.
Salmon, 147.
Osborne & Palmer, 198.
Stevens, 216.
Bayley, 292.
Imray (*Quimbel*), 309.
Hart, 315.
Rydill, 329.
Joslin, 341.
Gall, 392.
Gedge (*Michelet*), 403.
Derham (*Morand*), 411.
Hunt (*Colfs-Heyne*), 425.
Bamber, 439.
Robertson, 448.
Dennison, 530.
Owen & Hill, 583.
Starkie, 593.
Lightowler & Best, 617.
Körting, 626.
Stanley, 628.
Lake (*Proudfoot*), 634.
Lake (*Proudfoot*), 635.
Topham, 643.
Rydill, 691.
Shepherd, 711.
Lake (*Knowles & Saunders*), 719.
Johnson, 730.
Jukes, 736.
Hart, 741.
Lake, 787.
Chappell, 796.
Mickle, 803.
Count d'Epineuil, 829.
Gratrix, 853.
Jobson, Messrs., 836.
Mayes, 838.
Lawton, 859.
Woodcock, 864.
Wilson, 875.
Jones, 891.
Mickle, 921.
Head, 923.
Midgley, 949.
Cook, 986.
Cooper, 991.
Wolstencroft, 1020.
Gigodot, 1026.
Johnson (*Riot & Roux*), 1069.
Williams, 1122.
Landau, 1131.
Stratford, 1133.
Newton (*Lowman*), 1153.
Sellers & Richardson, 1155.
Davies, 1160.
Goldsbrough, 1181.
Steel & Garland, 1192.
Mitchell, 1203.
Young, 1212.
Clark, 1216.
Bonner, 1265.
Barton, 1282.
Brakell, 1286.
Ecroyd & Wass, 1318.
Smyth, 1320.
Day & Turner, 1328.
Clough, 1360.
McKay & Macgeorge, 1365.
Knowles, 1374.
Foster & Foster, 1375.
Todd, 1389.
Nicklin & Frost, 1396.

Air supplying, &c.—*cont.*
Rhodes, Rhodes & Frankland, 1401.
Torr & Johnstone 1462.
Haggett, 1461.
Smith, 1478.
Lloyd, 1480.
Pohl, 1503.
Onion & Onion, 1536.
Bradbury, 1537.
Barrow & Barrow, 1546.
Gray, 1617.
Imray (*Loiseau*), 1622.
Mickle, 1656.
Wirth (*Boschan*), 1692.
Howatson, 1742.
Gadd, 1763.
Williams, 1773.
Healey, 1788.
Hewett, 1793.
Howatson & Williams, 1812.
Lovibond, 1844.
Lutschaunig & Ricketts, 1895.
Schallehn (*Stamer*), 1962.
Stanley, 1948.
Smith (*Dewe*), 1956.
Ray (*Heilmann*), 1960.
Milner, 1997.
Marley & Thompson, 2065.
Nimmo, 2163.
Cramp, 2179.
Meldrum, 2407.
Salmon, 2419.
Whight (*Rogerson*), 2433.
Vaughan (*Lermann & Aldendorff*), 2461.
Hathaway, 2521.
Hurd & Simpson, 2594.
Rydill, 2634.
Wirth (*Eichwede*), 2660.
Dean, 2731.
Musgrave & Shillington, 2749.
Knoblauch, 2753.
Smith, 2787.
Schacher & Feret, 2809.
Boyd (*Farinaux, Pichaux, Girol & Sartoris*), 2951.
Dobbie & Forbes, 2959.
Edwards, 2974.
Johnson (*Sellers & Sellers*), 2982.
Walker, 3017.
Owen, 3034.
Gardner (*Gigodot*), 3053.
Day & Walker, 3089.
Ritchie, 3227.
Voisin, 3253.
Mewburn (*Dowd & Dowd*), 3363.
Pickwell, 3364.
Browne (*Foundries & Forges Co.*), 3376.
Baird, 3391.
Dyer, 3400.
Price, 3462.
Finch, Messrs., 3480.
Stevenson, 3514.
Bousfield (*Stevens*), 3575.
Mills (*Burgess*), 3589.
Hart, 3638.
Peacock & Peacock, 3641.
Pearson, 3667.
Heys, 3674.
Leigh, 3678.
Hyatt, 3684.
Crampton, 3687.
Johnson (*Richards, Wail, Shapley & Jones*), 3745.
Pettitt, 3754.
Warren, 3765.
Nimmo, 3792.
Ramsden, 3796.
Chipperfield, 3804.
Lutwyche, 3810.
Wirth (*André*), 3843.
Thompson, 3849.
Parker & Wade, 3868.
Hawken, 3889.
Edwards, 3905.
Scott & Heys, 3912.
Clarke, Clarke & Harrold, 3924.
Lloyd, 3925.
Kenyon, 3928.
Russell, 3941.
Whittle, 3983.
Redish, 4005.
Davies & Dawson, 4064.
Spartali, 4090.
Spartali, 4091.

**Air supplying, &c.—*cont.***
Aitken, 4227.
Lloyd, 4235.
Crosland, 4239.
Cadett, 4262.
Browne, 4279.
Johnson (*Pernot*), 4291.

**Air supplying to lamps and burners:**
Silber, 334.
Young, 347.
Johnson (*Hitchcock, Sigourney & Rosa*), 356.
Emmens, 576.
Haseltine (*White & Knight*), 806.
Wood, 901.
Thornton, 989.
Doty, 1047.
Landau, 1131.
Harper, 1251.
Silber, 1304.
Giles, 1366.
Harvie, 1403.
Harvie, 1404.
Haggett, 1461.
Watson, 1472.
Doty, 1498.
Miles, 1506.
Wirth (*Korwan & Flürscheim*), 1611.
Poole, 1671.
Imray (*Payot*), 1852.
Newton (*Truesdell*), 1875.
Gardner, 1881.
Lutschaunig & Ricketts, 1895.
Thomas & Piggott, 2107.
Bousfield (*Mackinnon*), 2235.
Cramp, 2260.
Silber, 2427.
Liotard, jun., 2491.
Stockman & Bennett, 3166.
Silver, 3180.
Burt, 3186.
Johnson (*Hitchcock, Sigourney & Rosa*), 3212.
Silber & Farquhar, 3291.
Robertson, 3445.
Edwards, 3905.
Dupont, 4060.
Souchard, 4105.
Egginton (*Stone*), 4240.

**Air supplying to musical instruments:**
Dawes, 3337.
Sèches, 3503.
Johnson (*Winans*), 3820.

**Airing beds.** *See* "Heating or warming."

**Albumenizing paper.** *See* "Coating paper."

**Albums:**
Fox, 1932.
Bevan, 3898.

**Alcohol.** *See* "Distilling alcohol."

**Ale (treating).** *See* "Brewing."

**Alkalies; alkali-metals and compounds:**
Boundy, 17.
Croll, 45.
Spence, 50.
Clark (*Audouin & Pelouze*), 109.
Target, 168.
Williams, 268.
Patterson, 274.
Latham, 331.
Henry (*Collett & DeLavillasse*), 650.
Hargreaves & Robinson, 680.
Lee, 695.
Buchanan, 752.
Hargreaves & Robinson, 764.
Morgan-Brown (*Littmann*), 793.
Hargreaves & Robinson, 828.
Jones, 894.
Hughes (*Daudenart & Verbert*), 939.
Clark (*Challeton*), 945.

**Alkalies, &c.—*cont.***
Robey & Chantrell, 957.
Ellis, 1274.
Ellis, 1285.
Nixon & Quin, 1522.
Russell (*Moore & Williamson*), 1556.
Fletcher, 1786.
Werdermann, 1934.
Arrott, 2236.
Gow, 2472.
Knab, 2482.
Harcourt & Fison, 2685.
Freestone & Humphris, 2729.
Kenyon & Swindells, 2739.
Crookes, 2790.
Abel (*De Grousilliers & Siemens*), 2838.
Fyfe & Bowers, 2873.
Bois, fils, 2936.
Hunt, 2944.
Hughes (*Daudenart & Verbert*), 3014.
Kennelly, 3032.
Spence, 3071.
Deacon, 3092.
Weil & Lyte, 3136.
Tamin, 3151.
Young, 3156.
Dale & Dale, 3191.
Wirth (*Beins*), 3194.
Deacon, 3336.
Bois, fils, 3452.
Stevenson, 3474.
Owen, 3502.
Smith, 3573.
De Lungo (*Tardani*), 3633.
Hyatt, 3788.
Gilbee (*Wahlenberg*), 3799.
Weldon, 3805.
Wildsmith, 4007.
Kenyon & Swindells, 4013.
Collet & De Lavillasse, 4135.
Collet, De Lavillasse & Testud de Beauregard, 4166.
Lunge (*Kraut*), 4212.

**Alloys of metals.** *See* "Metals (smelting)."

**Alumina and its compounds; aluminium:**
Spence, 50.
Latham, 331.
Werdermann, 1933.
Dixon (*Cobley*), 2981.
Spence, 3071.
Hyatt, 3788.
Newton (*Jacquemart*), 4204.

**Amalgams (concentrating and saving):**
Peer, Lundquist & Rutherford, 3847.

**Ambulance tents.** *See* "Tents."

**Amianthus.** *See* "Asbestos."

**Ammonia.** *See* "Alkalies."

**Anchors; floating anchors; working anchors; kedges:**
Davis, 162.
Smith, 648.
Imray (*Chamberlin*), 1945.
Baxter (*Folkard*), 2124.
Newton (*Fleetwood*), 2388.
Imray (*Chamberlin*), 2647.
Chantrell (*Hope*), 2707.
Campbell, 2805.
Punshon, 3061.
Byron (*Arnold*), 3247.
Clarke & Walker, 4149.

**Anchors for land tillage.** *See* "Ploughing."

**Angle iron:**
Beesley, Messrs., 3498.

**Angles (determining):**
Clark (*Carpenter*), 1090.

**Angles for squaring circles.** *See* "Mathematical instruments."

**Animal oils.** *See* "Oils (animal)."

**Animal traps (setting).** *See* "Traps."

**Annealing pots and saucers:**
Woodruff, 773.

**Anodyne compounds.** *See* "Medicines."

**Anthracine:**
Rowley, 853.
Caspers, 1689.

**Antiseptics:**
Lindemann, 3871.

**Anvils:**
Theaker & Osborn, 313.
Roberts, 1169.

**Apples (paring and slicing).** *See* "Preserving food."

**Aquariums:**
Lyttle, 52.
Kennard, 1156.

**Armlets and anklets:**
Pulvermacher, 1067.

**Armour; armour plates:**
Wilson, 239.
Hampton, 842.
Haggett, 1461.
Timmis, 1521.
Lewis, 1780.
Byron (*Arnold*), 3247.
Byron (*Arnold*), 3365.
Lewis, 3721.
Parlour, 4030.
Count de Gendre, 4215.

**Artificial fuel.** *See* "Fuel."

**Artificial lava.** *See* "Asphalte."

**Artificial stone and marble.** *See* "Stone."

**Artificial teeth.** *See* "Dentistry."

**Artists' scrapers:**
Haight, 966.

**Asbestos; amianthus:**
Asbury, 139.
Halfpenny, 262.
Sokolnicki, 336.
Fish, 884.
Fish, 924.
Wotherspoon, 1600.
Gadd, 1763.
Wotherspoon, 2337.
Wotherspoon & Foulis, 2391.
Hyatt, 3256.
Hyatt, 3380.
Hyatt, 3381.
Hyatt, 3658.
Hyatt, 3684.
Hyatt, 4241.

**Ash pans.** *See* "Fire-places."

**Asphalte:**
Ivory, 717.
Gray (*Sebille*), 1054.
Stone, 1261.
Rollason, 1610.
Roberts, 1700.
Henson, 1891.
Bresson, 1940.
Henson, 1968.
Barnett, 2598.
Johnson (*Malo & Robin*), 3275.
Williams, 3280.
Bennett, 3345.
Knight, 3373.

**Asphalte**—*cont.*
Ford, 3865.
Renaudon, 3887.
Vigouroux, 3965.
Moore & Steven, 4156.

**Astronomical instruments:**
Adams, 1257.
Adams, 2878.

**Asylum doors (fastening and unfastening).** *See* "Doors."

**Atmospheric hammers.** *See* "Hammers."

**Attaching horses to carriages.** *See* "Harness."

**Automatic telegraphs.** *See* "Telegraphs (pneumatic)."

**Aviaries:**
Rowat, 1661.

**Awnings and canopies:**
Lake (*Barton*), 540.
Morris, 1344.
Clark (*Adams*), 3420.

**Axes, adzes and hatchets:**
Haseltine (*Alexander*), 326.
Reidy, 848.
Newton (*Lowman*), 1153.

**Axles and axle-boxes:**
Parlour, 144.
Salmon, 147.
Glen, 176.
Prouse & Duke, 366.
Mewburn (*Dubreuil*), 410.
Forrest, 610.
Shearman (*Montgomery*), 620.
Michaud, 629.
Lake (*Wilson*), 727.
Tasker, 746.
Smith, 906.
Newton, 1007.
Wood, 1023.
Spencer & Smith, 1045.
Lawson, 1102.
Holden, 1103.
Haggett, 1461.
Maher, 1598.
Botwood, 1615.
Morgan-Brown (*Gates & Gates*), 1634.
Wilson, 1695.
Lake (*Brewer*), 1769.
Hadfield, 1787.
Murphy, 1918.
Partridge, 2234.
Alley, 2409.
Salmon, 2419.
Thomason, 2510.
Wise (*Eccles & Eccles, jun.*), 2661.
Walker, 2879.
Wirth (*Osenbrück*), 2991.
Watts & Watts, 3069.
Fennelly (*Pilkington*), 3116.
Thomas (*Perreos*), 3603.
Palmer, 4054.
Handyside, 4124.

## B.

**Bags; filling sacks or bags:**
Davis, 353.
Davis, 354.
Edington, 909.
Beadon, 1048.
Derney, 1468.
Buncher, 1538.
Henson, 1580.
Stubbs, Messrs., 1613.
Haseltine (*Howlett & Onderdonk*), 1622.
Fox, 1932.

**Bags, &c.**—*cont.*
Nisbet, 2111.
Kimball & Morton, 2227.
Harris, 2804.
Robinson (*Howlett & Onderdonk*), 2973.
Rutherford, 3358.
Laird, jun., & Rutherford, 3508.
Morgan-Brown (*Crowell*), 3677.
Mills (*Sim*), 3763.
Fuller (*Ashley*), 3974.
D'Humy, 4000.
Griswold (*Clark*), 4140.

**Baking mixtures:**
Clark, 3417.

**Balances.** *See* "Weighing."

**Bale ties.** *See* "Hoops."

**Baling cotton.** *See* "Presses."

**Ball and socket joints:**
Corbett, 2604.
Hayes, 3534.

**Ballast weights:**
Eamonson, 2526.

**Ballasting ships.** *See* "Shipbuilding."

**Balloons.** *See* "Aërial-machines."

**Ballot apparatus.** *See* "Voting."

**Bandages.** *See* "Medical treatment of man."

**Bands and belting for machinery; belt tighteners:**
Gibbs, 330.
Sholl, 525.
Weston, 960.
Hoffmark (*Schpakowsky*), 2359.
Binns, 2360.
Harrison, 2488.
Lambert, 2549.
Greenwood & Dennell, 2774.
Weston, 3023.
Turner (*Righter*), 3043.
Clark (*Loiseau*), 3419.
Jones, 3592.
Browne (*Künzli*), 3702.
Toussaint, 3753.

**Bark from osier rods, &c. (removing).** *See* "Osier."

**Barley.** *See* "Grain."

**Barometers:**
George & Porter, 224.
Simmons, 652.
Morgan-Brown (*Ripamonti & Ripamonti*), 1423.

**Barrels.** *See* "Casks."

**Barrels (glass):**
Redgrave & Wright, 223.

**Baryta:**
Smith (*Du Motay*), 328.
Hughes (*Daudenart & Verbert*), 938.
Hughes (*Daudenart & Verbert*), 939.
Fitz-Gerald & Molloy, 2102.
Cole, 2418.
Hughes (*Daudenart & Verbert*), 3013.
Hughes (*Daudenart & Verbert*), 3014.

**Basins (lavatory).** *See* "Lavatories."

**Baskets:**
Bremerkamp, 61.
Rhodes, 3517.
Smith, 3629.

**Bass-reliefs:**
Whitburn, 48.

**Basting meat.** *See* "Cooking."

**Baths; bath appliances; bathing caps:**
Garon, 62.
Shanks, 199.
Lake (*Martin & Beath*), 290.
Blundell, Messrs., 671.
Rowbotham & Richardson, 684.
Grigg, 786.
Lake, 787.
Tylor, 907.
McKaig & Stitt, 1146.
Giles, 1366.
Rae, 1802.
Shanks, 2021.
Nisbet, 2111.
Evans, 2142.
Giles, 2307.
Wheeler, 2503.
Main, 2544.
Hunt (*Bate*), 2794.
Walker, 3017.
Ritchie, 3227.
Hunter, 3279.
Underhay & Carter, 3916.
Akester, 4172.
Perrett, 4249.

**Batteries; fortifications:**
Wilson, 239.
Tolson, 782.
Goddu, 1313.
Haggett, 1461.
Lewis, 1780.
Spartali, 3197.
Byron (*Arnold*), 3247.
Byron (*Arnold*), 3365.
Lewis, 3721.
Parlour, 4030.
Count de Gendre, 4215.

**Bayonets; bayonet fastenings:**
Hughes (*Chillingworth*), 1779.
Hughes (*Chillingworth*), 3696.

**Beaming machines.** *See* "Warping."

**Beams and girders:**
Hunt, 142.
Haggett, 1461.
Hansen, 1810.
Sterling, 2022.
Tweddell, Wilson, Ashbee & Platt, 2145.
Newton (*Eads*), 2978.
Hyatt, 3256.
Hyatt, 3381.
Hyatt, 3684.
Hornblower, 3714.

**Bearings, journals and steps:**
Johnson (*Pearl & Battles*), 18.
Parlour, 144.
Batley, 242.
Prouse & Duke, 366.
Edwards & Taft, 373.
Mewburn (*Dubreuil*), 410.
Forrest, 610.
Shearman (*Montgomery*), 620.
Lake (*Wilson*), 727.
Smith, 906.
Watson & Robertson, 974.
Spencer & Smith, 1045.
Carr, 1417.
Haggett, 1461.
Henchman, 1657.
Lake (*Brewer*), 1769.
Pilkington, 1776.
Brooks, Harrison & Goodbehere, 1804.
Lake (*Blackman*), 1831.
Firth, 2141.
Boyd & Boyd, 2236.

**Bearings, &c.—*cont.***
Partridge, 2234.
Sutton, 2315.
Alley, 2409.
Harding & Harding, 2499.
Wise (*Eccles & Eccles, jun.*), 2651.
Hodgson, 2818.
Follows & Bate, 2836.
Higgins & Whitworth, 2961.
Wirth (*Osenbrück*), 2991.
Alley, 3148.
Hahn (*Jacoby*), 3246.
Lake (*Baxter*), 3343.
Pope, 3405.
Haseltine (*Wyss & Studer*), 3487.
Hyatt, 3684.
Haseltine (*Oldfield*), 3700.
Revell, 3709.
Hyatt, 4241.

**Bed keys:**
Schlesinger (*Grout*), 465.

**Beds.** *See* "Upholstery."

**Bedsteads.** *See* "Furniture."

**Bed-warmers.** *See* "Heating or warming."

**Beech nuts (treating).** *See* "Acorns."

**Beer.** *See* "Brewing."

**Beer engines; raising beer:**
Redgrave & Wright, 223.
Dean & Keighley, 657.
Wharton & Lister, 688.
Warren, 2781.
Ambler & Gawthorp, 3392.

**Beer vessels or bottles:**
Rice, 3216.

**Bells; ringing bells; gongs:**
Stroudley & Drummond, 6.
Smith, 1376.
Canning & Mayor, 2554.
Rahles & Mac Kenzie, 2562.
Hughes (*Sargent*), 2595.
Hill, 2597.
Moseley, 2969.
Conradi, 3124.
Chadburn, 3434.
Mills (*Burgess*), 3569.
Skaife, Gillett & Bland, 4141.

**Belts and bands for wear:**
Jones, 1042.
Pulvermacher, 1067.
Carron, 1295.
Altman, 1748.
Stewart, 2206.
Halladay, 2365.
Daniels, 2631.
Tyrer, 2922.
Eyland, 3085.
Pulvermacher, 3519.
Ramsay, 3608.

**Belts for machinery.** *See* "Bands."

**Benzole:**
Rowley, 853.

**Beton.** *See* "Cement."

**Bibs:**
Nisbet, 3111.

**Bichromate of potash.** *See* "Alkalies."

**Bilge pumps:**
Bourget, 2985.
Richardson, 3011.

**Bill, letter and document cases:**
Pilon, 637.
Hathaway, 3140.

**Billiards; billiard cues and tables:**
Fuller, 161.
Lancaster & De La Rue, 639.
Rowbotham & Richardson, 684.
Philips, 2069.
Poole, 2478.
Hunt, 2709.
Colles, 3512.
Burroughes, 4074.

**Binding and gaveling grain.** *See* "Reaping."

**Bins (bottle).** *See* "Bottle bins."

**Bins (corn).** *See* "Corn bins."

**Bins (orderly).** *See* "Roads (cleansing)."

**Bird cages:**
Hyatt, 3380.

**Biscuits.** *See* "Bread."

**Bisulphide of carbon.** *See* "Sulphuret of carbon."

**Bits.** *See* "Harness."

**Bitumen.** *See* "Asphalte."

**Black lead.** *See* "Plumbago."

**Blacking; filling blacking bottles:**
Patison, 569.
Clayton, 1775.
Skoines, 2262.
Clayton, 3806.

**Blacking for metal founders:**
Skoines, 2262.
Fraser & Watson, 3632.

**Blast engines.** *See* "Blowing."

**Blast furnaces.** *See* "Furnaces."

**Blasting:**
Roberts, 926.
Davey & Watson, 1267.
Bonneville (*Biennait*), 1348.
Morgan-Brown (*Toselli*), 1440.
Mc Evoy, 1586.
Mackie & Faure, 1830.
Imray (*Gottheil*), 2506.
Walker, 2568.
Norris, 2815.
Brain, 2976.
Brain, 2984.
Haseltine (*Powers*), 3578.
Ball (*François & Dubois*), 3611.
Fenton, 4146.
Carr & Urwin, 4288.

**Bleaching books, papers and engravings:**
Johnson (*David*), 3190.

**Bleaching fabrics, fibres, leather, skins and yarn:**
Carmichael, 72.
Beutley & Garth, 145.
Rydill, 229.
Henderson (*Demailly*), 591.
Oldroyd, Oldroyd, jun., Woodcock & Coulter, 898.
Johnson (*David & Fichet*), 1222.
Rickards, 1399.
Hunt (*Meyh & Voelter*), 1421.
Rickards, 1460.
Hodges, 1672.
Milner, 1997.
Heywood & Duckworth, 2303.
Wirth (*Reinemer & Stemler*), 2320.
Knott, 2442.
Neville, 2918.
Mason, jun. & Alcock, 2997.
Scott, 3087.
Johnson (*David*), 3190.

**Bleaching fabrics, &c.—*cont.***
White (*Lloyd*), 3310.
Bevan, 3333.
Imray (*Poyer*), 3350.
Johnson, 3601.
Blake, 3777.
Paget (*Bérenger*), 3953.
Mallison, 3993.
Baerlein, 4014.
Johnson (*Frezon, sen.*), 4027.
Oldroyd, Oldroyd, jun., Woodcock & Coulter, 4157.
Birch, 4234.

**Bleaching oils and fats:**
Johnson (*David*), 3190.
Brin, 3477.
Smith & Field, 3942.

**Bleaching paper pulp:**
Hunt (*Meyh & Voelter*), 1421.
Johnson (*David*), 3190.
Weldon, 3655.
Martin, 3751.

**Bleaching powders and liquors:**
Wigg, 1725.
Haithwaite, 2318.
White (*Lloyd*), 3310.

**Bleaching resin.** *See* "Resin."

**Bleaching sea-weed.** *See* "Sea-weed."

**Bleaching sugar.** *See* "Sugar.

**Blisters.** *See* "Medical treatment."

**Blocks (printing).** *See* "Printing."

**Blood manure.** *See* "Manure."

**Blowing engines; fans:**
Robertson, 248.
Brotherhood, 287.
Fairclough & Fairclough, 350.
Gedge (*Michelet*), 403.
Robertson, 448.
Körting, 626.
Brakell, 726.
Mickle, 803.
Tinne, 1419.
Vacherot, 1824.
Hahn, 2040.
Nimmo, 2162.
Chapman, 2281.
Smith, 2787.
Hammond (*Justice*), 2871.
Haseltine (*Wyss & Studer*), 3487.
Browne, 4279.
Johnson (*Asbury*), 4292.

**Boarding or softening leather.** *See* "Leather."

**Boats.** *See* "Ship-building."

**Bobbins; spools; cop tubes:**
Johnson (*Pearl & Battles*), 18.
Lake (*Seeling*), 79.
Bash, 506.
Laycock & Shuttleworth, 1078.
Johnson (*Farmer*), 1107.
Sington (*Meunier*), 1889.
Mewburn (*Detraux*), 2323.
Andrew, 2542.
Becker & Jones, 2893.
Ryo, Bros., & Emsley, 3066.
Lely, 3072.
Revell, 3709.

**Bodices.** *See* "Stays."

**Boilers (domestic and open):**
Garon, 62.
Shanks, 199.
Erskine & Denby, 312.
Barff (*Kidd*), 520.
Halmshaw, 586.
Barraclough, 756.
Gratrix, 853.
Thornton, 989.

**Boilers (domestic, &c.)—*cont.***
Haggett, 1461.
Metcalf, 1837.
Hartley, 2329.
Lee, jun., 2370.
Johnson (*Davidson*), 2438.
Musgrave & Shillington, 2749.
Barraclough, 2857.
Newton (*Babbitt*), 2962.
Edwards, 2974.
Napier, 3357.
Read, 4016.
Verity & Verity, 4096.

**Boilers for effecting solution and filtration:**
Johnson (*Eymael*), 3360.

**Boilers (horticultural):**
Garon, 62.
Erskine & Denby, 312.
Watson, 1217.
Metcalf, 1837.
Hartley, 2329.
Lee, jun., 2370.
Read, 4016.
Verity & Verity, 4096.

**Boilers (papermakers'):**
Houghton, 1311.

**Boilers (steam-engine).** *See* "Steam-boilers."

**Bolting flour.** *See* "Sifting."

**Bolts:**
Sholl, 525.
Lake (*Cochrane*), 1021.
Keen, 1296.
Griffin (*Hickey*), 1398.
Liernur, Kops & Martignoni, 1648.
Heap, 1765.
Pickup, 1811.
Sterling, 2022.
Sanders & Sanders, jun., 2139.
Jensen (*Johnston*), 2650.
Grimshaw, 2999.
Browne, 3118.
Dobson, 3192.
Bromhead, 3234.
Byron (*Arnold*), 3247.
Tongue (*Vigour*), 3520.
Goodwin, 3728.
Hughes (*Wood*), 3834.
Smith & Coventry, 3878.
Chelot, 3897.
Haseltine (*Lindsay*), 4113.

**Bone; imitation bone or ivory:**
Staight & Staight, 1964.
Stone, 2678.
Smith, jun., 2964.
Goulstone, 3768.
Wildsmith, 4007.

**Book-binding; trimming books:**
Halfpenny, 262.
Henson, 1580.
Banks, 2468.
Bousfield (*Shedd*), 2641.
Lake (*Semple*), 2837.
Neville, 2918.
Robertson, 3445.
Hyatt, 3684.
Wilson, 3958.
Haseltine (*Averell*), 4031.
Harrington, 4055.

**Books; pocket books; book-cases and rests; leaf turners:**
Whitburn, 48.
Pilon, 637.
Fox, 1932.
Nisbet, 2111.
Hosking, 2248.
Newton (*Loryea*), 2349.
Whitmarsh, 2979.
Hathaway, 3140.
Johnson (*David*), 3190.
Poth & Simpson, 3451.
Hyatt, 3684.
Doe, 3818.
Bevan, 3896.

**Bootakins.** *See* "Leggings."

**Boots, shoes and goloshes; blocking and stretching boots:**
Smith, 70.
Seiferheld (*Deregnaucourt*), 103.
Cowper, 131.
Wright (*Aublet & Baudot*), 175.
Lake (*Blake*), 227.
Lewis, 322.
Gedge (*Brunel-Bodin & Brunel-Marchand*), 875.
Storry, 478.
Clark (*Goodwin*), 501.
Smyth, 609.
Morgan-Brown (*Brooks*), 822.
Hunt (*Hodges*), 874.
Lake (*Mears*), 877.
Grimes, 1013.
Winslow, 1019.
Morris, 1033.
Reed, 1052.
Pulvermacher, 1067.
Barber, 1161.
Palliser, 1213.
Johnson (*Jeandron-Ferry*), 1293.
Morris, 1344.
Hodges & Wheeler, 1380.
Poirier, 1426.
Cheesbrough (*Walden*), 1453.
Henson, 1580.
Rowlett, 1655.
Lanham, 1662.
Blakey, 1821.
Cowper, 1822.
Lake (*Tucker*), 1860.
Mills (*Goodyear*), 1965.
Gedge (*Perrissin & Co.*), 2194.
Curtis (*Ross*), 2238.
Wulff, 2322.
Harrison, 2488.
Lake (*Harris*), 2675.
Burrows, 2705.
Greenwood & Dennell, 2774.
Crowley, jun., 2820.
Neville, 2918.
Lanham, 2958.
Hatch, 3111.
Ford, 3135.
Stevens, 3155.
Ney, 3302.
Chambers, 3406.
Gingembre, fils, 3412.
Denne & Denne, 3451.
Lake (*Blake*), 3470.
Lake (*Blake*), 3475.
Lake (*McKay*), 3565.
Hodges (*Johnson*), 3845.
Newton (*Shepard*), 3864.
Scott, 4041.
Browne (*Durand & Duborget*), 4080.

**Boots and shoes (cleaning):**
Lewis, 2587.
McVoy, 3921.

**Boring, drilling, rifling and punching metals:**
Henson, 191.
Marval (*Berdan*), 398.
Marval (*Berdan*), 413.
Lake (*Ritchell*), 558.
Shaw, 597.
Talbot, 716.
Newton (*Lowman*), 1153.
Fenby, 1431.
Cort, 1545.
Ball, 1638.
Donald & Atkey, 1653.
McComb (*Johnson*), 1835.
Tannett, Craven & Fox, 1847.
Johnson (*Herzberg & Herzberg*), 2058.
Platt & Tweddell, 2168.
Lowry, 2864.
Lely, 3072.
Mills (*Stiles*), 3210.
Stevenson, Ree & Dunlop, 3248.
Howell (*Richards*), 3274.
McNabb, 3415.
Beesley, Messrs., 3498.
Foxwell, 3545.
Hunt (*Hawes*), 3556.

**Boring, &c.—*cont.***
Stiff, 3846.
Smith & Coventry, 3878.
Haseltine (*Lindsay*), 4113.

**Boring and drilling rock or stone:**
Edwards, 541.
Macdermott, 679.
Rigby, 879.
Darlington, 1168.
Edwards, 1220.
Cranston, 1455.
Ball, 1638.
Donald & Atkey, 1693.
Darlington, 1734.
Beaumont, 1919.
Brydon & Davidson, 1991.
Ainsley & Hall, 2165.
Lake (*Mc Kean*), 2263.
Imray (*Gottheil*), 2506.
Hurd & Simpson, 2594.
Carey, 2660.
Patterson, 3396.
Ball (*François & Dubois*), 3611.
Lake (*McKean*), 3901.
Carr & Urwin, 4268.

**Boring and drilling wood:**
Lake (*Ritchell*), 558.
Raper, 1340.
Livsey (*Hall*), 2625.
Lely, 3072.
Bradwell, 3097.
McFarlane, 3844.
Smith & Coventry, 3878.

**Bottle and flask stoppers and capsules:**
Philippi, 11.
Thwaites & Stephens, 97.
Farrow, 218.
Smith, 324.
Wharldale, 327.
Johnson (*Masson*), 406.
Stocker, 702.
Russell, 765.
White, 928.
Gilbee (*Mégret*), 959.
Bonneville (*De Mestre*), 1038.
Maignan & Franck, 1561.
Geraut, 1666.
Risque, 1939.
Kay & Kay, 1976.
Murphy, 2166.
Betts, 2240.
Gooding, 2242.
Betts, 2611.
D'Humy, 2640.
Romanes, 2833.
Brown, 2916.
Perry, 2920.
Baker, 3009.
Thompson, 3187.
Paterson & Ritchie, 3298.
D'Humy, 4000.
Hubert, jun. & Boissel, 4011.
Edwards, 4114.
Stocker, 4199.
Horner, Horner & Sibley, 4252.
Codd & Foster, 4268.

**Bottle bins:**
Farrow, 2066.

**Bottle envelopes and wrappers:**
Hale, 2239.
Noad, 3917.

**Bottles; decanters; flasks; filling and withdrawing from bottles:**
Codd, 75.
Thwaites & Stephens, 97.
Dick, 362.
Dolby, 449.
Jaques, 815.
Gilbee (*Mégret*), 959.
Harvey, 1124.
Haggett, 1461.
Geraut, 1666.
Clayton, 1775.
Risque, 1939.
Jobbins (*Fischer*), 2013.

**Bottles, &c.—*cont.***
Schlesinger (*Grout*), 2312.
Lynch, 2458.
Bacon, jun., 2514.
Crawley, 2701.
Greener, 3025.
Thompson, 3187.
Rice, 3316.
Haycraft, 3605.
Britten, 3750.
D'Humy, 4000.
Edwards, 4114.
Stocker, 4199.
Horner, Horner & Sibley, 4252.
Codd & Foster, 4268.
Bazin, 4274.

**Bouquets; bouquet holders:**
Joseph, 440.
Conradi, 3124.
James, 3359.

**Box irons.** *See* "Ironing."

**Boxes; cases; chests; despatch boxes:**
Whitburn, 48.
Perman & Whitaker, 194.
Elmslie, 211.
Nichols, 215.
Wells, 219.
Hookham & Hookham, jun., 240.
Clark (*Levy*), 433.
Pilon, 637.
Lake (*Beck*), 795.
Drew, 929.
Raimond, 987.
Gedge (*Couette*), 1418.
Wheeler & Jerome, 1649.
Clark (*Sheldon*), 1746.
Fox, 1983.
Quinzac, 2096.
Browne (*Berthoud*), 2331.
Newton (*McKeever*), 2348.
Dougall, 2369.
Speight, 2397.
May, 2417.
Russell & Dominy, jun., 2492.
Cunliffe, 2802.
Coey, 2867.
Lilly, 2952.
Mohr, 2968.
Hyatt, 3256.
Loomes, 3306.
Coey, 3570.
Haseltine (*Powers*), 3578.
Samuel, 3627.
Collins, 3683.
Hyatt, 3684.
Mewis, 3703.
Scruton, 3722.
Wiley, 3730.
Parsons, 3746.
Dee, 3818.
Beaufort, 3931.
Henderson (*Anne*), 3959.
D'Humy, 4000.
Roman, 4177.
Henry (*Peltier & Paillard*), 4237.

**Bracelets:**
Carron, 1295.
Levi, 1962.

**Braces or suspenders:**
Ullmann, 112.
Halladay, 2565.
Tyrer, 2922.
Eyland, 3065.
Gedge (*Garnier*), 3181.

**Brackets:**
Wells, 219.
Rydill, 376.
Hughes (*Buckley & Sawyer*), 1017.
Lake (*Morrison*), 3012.

**Bradawl holders.** *See* "Tools."

**Brads.** *See* "Nails."

**Braid:**
Oldknow, 771.

**Braiding attachments for sewing-machines.** *See* "Sewing."

**Braiding hair.** *See* "Crimping."

**Braiding wire.** *See* "Wire."

**Bread; biscuits; bakers' ovens:**
Boes, 34.
Kininmonth, 102.
Hunt (*Colfs-Heyne*), 425.
Pilkington, 669.
Hughes (*Grimm & Corvin*), 700.
Boes, 808.
Clough, 1360.
Haggett, 1461.
Lake (*Zichermann*), 2357.
Clayton, 3282.
Clark, 3417.
Pinney, 3903.
Clarke, Clarke & Harrold, 3924.
Beque, 3990.
Adair, 4076.
Hutchin, 4117.
Lake (*Locke*), 4238.
Walker, 4258.

**Break guards or protectors:**
Jones, 2957.

**Breaking or tearing rags.** *See* "Rags."

**Breaking stones.** *See* "Stone breakers."

**Breaking woven fabrics in finishing.** *See* "Finishing."

**Breaks for carriages and railways; stopping trains:**
Betteley & Sharer, 238.
Lake (*Smith*), 279.
Clark, 361.
Stirling, 374.
Carrington, 427.
Lake (*Garau, Ticozzi & Co.*), 441.
Gillespie, 559.
Lightbody, 698.
Warner (*Hirsiger*), 749.
Lyttle, 791.
Blick, 1243.
Black, 1264.
Duckham, 1322.
Fenby, 1431.
Green, 1710.
Abel (*Westinghouse, jun.*), 1735.
Kriéger, 1768.
Paget (*Schoubersky*), 1963.
Evans, 1970.
Campbell, 2088.
Spencer (*Buckwell*), 2157.
Cramp, 2179.
Clark (*Taylor*), 2269.
Bonneville (*Grüninger*), 2305.
Varley & Furness, 2324.
Clark (*Achard*), 2350.
Gillespie, 2415.
Salmon, 2419.
Cohrs, 2630.
Jones, 2957.
Roberts, 3035.
Fielding, 3067.
Sands, 3145.
Holmes, 3150.
Davidson & Williams, 3286.
Richard, 3484.
Cook, 3559.
Spill, 3650.
Haseltine (*Henderson*), 3653.
Johnson (*Agudio & Cail & Co.*), 3724.
Abel (*Westinghouse, jun.*), 3840.
Steel, 3890.
Manning, 3952.
Wirth (*Sigl*), 4028.
Neill & Neill, 4058.
Steel, 4110.
Wirth (*Brandt*), 4222.

**Breaks for lowering ships' boats.** *See* "Ships' boats (lowering)."

**Breaks for machinery:**
Jaynor, 66.
Owen 160.
Barnard, 428.
Siddons, 508.
Sholl, 525.
Raworth, 869.
Griffin (*Babbett, Miles & Hickey*), 908.
Weston, 960.
Mowbray, 965.
Baron de Mouncie, 1094.
Reichenbach, 1334.
Weston, 1379.
Mallory, 1642.
Smith, 1879.
Stebins, Rosenfield, Mayers & Leon, 2057.
Singleton, 2244.
Varley & Furness, 2324.
Urquhart, 2382.
Mills (*Hypersiel*), 2550.
Mills (*Knous*), 2880.
Weston, 3023.
Deshayes, 3073.
Davis, 3277.
Weston, 3473.
Floyd, 3529.
Johnson (*Agudio & Cail & Co.*) 3724.
Mackie, 3852.
Johnson (*Carto*), 4147.
Singleton, 4244.

**Breakwaters; sea walls; foreshores:**
Paddison, 193.
Lake (*Marques*), 317.
Mellor, 1767.
Hydes & Bennett, 2336.
Studer, 4062.

**Breast or bust pads for ladies' and soldiers':**
Sénéchal, 2928.

**Brewing; treating beer:**
Marsters, 536.
Sutton, 599.
Smith (*Giffard, Sublet & Armengaud, jeune*), 627.
Clark (*Marguerite*), 682.
Marsters, 737.
Woods & De Malortie, 1006.
Lawrence, 1083.
Clark (*Pasteur*), 1106.
Barlow (*Galland*), 1346.
Barlow (*Galland*), 1443.
Lyon & Robinson, 1529.
Lees & Faulkner, 1612.
Lovibond, 1844.
Bodmer & Bodmer, 2026.
Beams, 2028.
Hatschek, 2042.
Ker, 2123.
Beanes, 2129.
Baxter, 2421.
Wright, 2470.
Thomas 2480.
Neubecker, 2500.
Marsden, 3018.
Gillman & Spencer, 3056.
Johnson (*Eymael*), 3360.
Symington, 3432.
Weston, 3706.
Tooth, 3877.
Messenger, 4001.
Hodson, 4203.
Alleyn, 4256.

**Bricks, tiles and building blocks:**
Hunt, 142.
Scholefield, 170.
Bacon, 232.
Batley, 242.
Bonneville (*Schenck & Hayek*), 310
Clark (*Laurette*), 368.
Lyne, 380.
Derham (*Morand*), 411.
Hunt (*Colfs-Heyne*), 425.
Fawcett, 471.
Gilchrist & Thomas, 507.
Barff (*Kidd*), 520.

**Bricks, &c.—*cont.***
Greenwood, Saville & Morton, 568.
Bodmer, 590.
Jensen (*Erichsen & Maardt*), 602.
Chamberlain, 623.
Rowbotham & Richardson, 684.
Stone, 723.
Thornalley, 739.
Buchanan, 752.
Smith, 759.
Hamblet & Davies, 780.
Vassard, 819.
Lake (*Krause*), 944.
Pabey, Banks & Forester (*De Bettignies, Bros.*), 970.
Hall, 971.
Coddington (*De Witt & Fairman*), 1004.
Martin, 1070.
Nancarrow, 1137.
Bonner, 1265.
Weigelin, 1338.
Morris, 1344.
Shaw, 1377.
Nicklin & Frost, 1396
Tooth & Tooth, jun., 1414.
Taylor, 1439.
Haggett, 1461.
Grimbleby & Grimbleby, 1512.
Barrow & Barrow, 1548.
Skelton & Mobberley, 1647.
Downing, 1667.
Cowdery, 1680.
Wade & Cherry, 1781.
Stubbs, 1814.
Robbins, 2116.
Griffith, 2170.
Simon, 2251.
Wood, 2306.
Hydes & Bennett, 2336.
Gaillon, 2414.
Gillespie, 2646.
Barber & Ingham (*Burns*), 2711.
Clark (*Pavy*), 2746.
Johnson (*Payne*), 2798.
Milburn & Jackson, 2855.
Stone, 2915.
Hodson, 2923.
Wood, 3255.
Hyatt, 3256.
Woolley & Padgett, 3348.
Pickwell, 3364.
Murray, 3366.
Hyatt, 3380.
Hyatt, 3381.
Stone, 3387.
Scott, 3505.
Beart, 3604.
Poole, 3623.
Hyatt, 3653.
Hyatt, 3634.
Hornblower, 3714.
Britten, 3750.
Hyatt, 3788.
Bookey, 3875.
Renaudon, 3887.
Oppenheimer, 3971.
Fawcett, 4045.
Holland, 4216.
Hyatt, 4241.

**Bridges; lift and draw bridges; viaducts:**
Mascurine, 207.
Dixon, 222.
Nangle, 495.
Haggett, 1461.
Browne, 1795.
Hansen, 1810.
Tweddell, Wilson, Ashbee & Platt, 2145.
Clark & Standfield, 2498.
Wise (*Eccles & Eccles, jun.*), 2661.
Robertson, 2684.
Stone, 2915.
Newton (*Eads*), 2978.
Newton (*Eads*), 3002.
Dobson, 3192.
Byron (*Arnold*), 3247.
Roy, 3374.
Hyatt, 3381.
Westwood, jun., 3560.
Newton (*Eads*), 3591.

**Brine.** *See* "Salt."

**Bromine:**
Hunt (*Reynoso*), 3717.

**Bronzing and gilding.** "*See* Gilding."

**Brooches:**
Joseph, 440.
Carron, 1295.
Sandheim, 3141.
Creese, 3646.
Edkins, Greaves & Newman, 3685.

**Brushes; tooth brushes:**
Lake (*Small*), 27.
Horner, 188.
Fairclough & Fairclough, 350.
Lake (*Ritchell*), 558.
Oldroyd, Oldroyd, jun., Woodcock & Coulter, 898.
Hacking & Hacking, 1015.
Raper, 1340.
Newton (*Covert*), 1541.
Stewart, 1659.
Cramp, 1955.
Pulvermacher, 1969.
Jobbins (*Fischer*), 2018.
Gough, 2106.
Bidwell, Messrs., 2291.
Kyle, 2410.
Clark (*O'Donoghue & O'Donoghue*), 2420.
Tinsley (*Shriver*), 2443.
Wright, 2470.
Scott (*Florence Manufg. Co.*), 2831.
Ascough, 3144.
Pulvermacher, 3519.
Apperly, 3816.
McVoy, 3921.
Johnson (*Bailleux-Lemaire & Co.*), 4221.

**Buckets.** *See* "Pails."

**Buckles and clasps:**
Haddan (*Fairman*), 1157.
Eyland, 1171.
Marshall, 1189.
Halladay, 2565.
Tyrer, 2922.
Eyland, 3085.
Gingembre, fils, 3412.
Cheshire, 3640.
Haseltine (*Ellis*), 4261.

**Buffers for railways.** *See* "Railway buffers."

**Buffing sticks:**
Wilkinson, 4134.

**Building hoists or elevators; substitute for scaffolding:**
Owen, 160.
Barnard, 428.
Weston, 960.
Keen & Dence, 1732.
Batt, 2520.
Jackson, 2799.
Davis, 3277.
Hendrickx & Kunstaedter, 4198.

**Buildings; strong rooms:**
Whitburn, 48.
Hunt, 142.
Lee & Rogers, 190.
Lake (*Warner*), 225.
Bonneville (*Schenck & Hayek*), 310.
Gardner, 633.
Taylor, 805.
Martin, 1070.
Arnall, 1306.
Taylor, 1438.
Haggett, 1461.
Jensen (*Erichsen*), 1499.
Lish, 1621.
Cowdery, 1680.
Lewis, 1780.
Rae, 1802.
Chatwood, 1846.
Green, 1885.
Murphy, 1941.

**Buildings, &c.—*cont.***
Bonneville (*Meitre*), 2010.
Sterling, 2022.
Whichcord & Anderson, 2046.
Robbins, 2116.
Easton, Pole & Whichcord, 2149.
Johnston, 2229.
Hide, 2308.
Hydes & Bennett, 2336.
Johnson (*Hyatt*), 2366.
Gaillon, 2414.
Stone, 2678.
Tall, 2733.
Clark (*Pavy*), 2746.
Cunliffe, 2802.
Stone, 2915.
Smith, 3022.
Jones, 3037.
Whichcord, 3040.
Mewburn (*Arntz*), 3100.
Byron (*Arnold*), 3247.
Hyatt, 3256.
Geering, 3284.
Ellis, 3311.
Hyatt, 3380.
Hyatt, 3381.
Chatwood, 3550.
Westwood, jun., 3560.
Newton (*Eads*), 3591.
Hyatt, 3653.
Hyatt, 3634.
Hornblower, 3714.
Lewis, 3721.
Hyatt, 3788.
Green, 3833.
Thomson, 3957.
Oppenheimer, 3971.
Taunton, 4066.
Barton, 4139.
Holland, 4216.

**Buildings (cleaning exterior of):**
Dennis, 301.
Cramp, 1955.

**Bungs, bung inserters.** *See* "Cork."

**Buoys; securing buoys:**
Sowerbutts, 100.
Coombe, 1673.
Bailey, 1706.
Garrard, 2090.

**Burning smoke.** *See* "Smoke."

**Burnishing.** *See* "Grinding, polishing."

**Bustles.** *See* "Dresses."

**Butter; buttereine; packing, shaping and ornamenting butter:**
Defeher, 311.
Lawrence, 1063.
Wotherspoon & Coey, 2573.
Coleman, 2585.
Coey, 2867.
McDonnell & McDonnell, 3333.
Castle, 3351.
Brin, 3477.
Coey, 3570.
Lake (*Roudebush*), 4209.

**Button holes:**
Melhuish, 946.
Moreau, 3614.

**Buttons; sleeve links; solitaires; studs; carding buttons:**
Loveridge, 850.
Gilbert, 1065.
Carron, 1295.
Fenby, 1431.
Parent, 1589.
Rollason, 1610.
Alldridge, 1740.
Lake (*Flatley & Marson*), 1982.
Alldridge, 2284.
Wheeler, 2330.
Ney, 3302.
Gingembre, fils, 3412.
Plant & Green, 3533.

**Buttons, &c.**—*cont.*
Dowler & Smith, 3580.
Cheshire, 3640.
Edkins, Greaves & Newman, 3685.
Wiley, 3730.
Henderson & Eley, 3851.
Gedge (*Gras*), 3956.
Scott, 4041.

## C.

**Cables (chain).** *See* "Chains."

**Cabs.** *See* "Carriages."

**Caissons:**
Paddison, 193.
Masourine, 207.
Sauvée (*Zouboff & Grounnere*), 1407.
Count de Gendre, 4215.

**Calcining:**
Imray, 325.

**Calcining or roasting ores.** *See* "Metals (smelting)."

**Calcium and its compounds:**
Dixon (*Cobley*), 2961.
Wirth (*Beins*), 3194.

**Calendars:**
D'Humy, 2536.
De La Rue, 2571.

**Calendering fabrics.** *See* "Finishing."

**Calendering paper boxes.** *See* "Boxes."

**Call-bells.** *See* "Bells."

**Caloric-engines.** *See* "Air-engines."

**Cameras:**
Stein, 1333.
Hodgson, 2122.
Varley, 2232.
Cooke & Emary, 2445.

**Camp and field equipage:**
Boes, 34.
Mapleson, 858.
Gedge (*Cousin*), 1418.
Lee, 1870.
Wintour, 2032.
Bopp-Du-Pont, 2076.
Traffles, 2181.
Lake (*Zichermann*), 2357.

**Canal boats (towing).** *See* "Propelling ships."

**Canal locks and lifts:**
Stoney, 550.
Clark, 611.
Clark & Standfield, 2498.

**Candles; candlesticks; lighting candles:**
Cowles, 99.
Clark (*Gravoits*), 703.
Webb, 728.
Clarke, 1041.
Clark (*Plantè*), 1713.
Steane, 2719.
Lyttle, 3312.
Tom & Guilfoyle, 3347.
Bierstumpfel, 3561.
Smith, 3906.

**Canisters:**
Speight, 2397.
D'Humy, 2465.

**Cannons.** *See* "Fire-arms."

**Canoes.** *See* "Ship-building."

**Cans (preserving):**
Clark (*Howe*), 1428.

**Cans (watering).** *See* "Watering pots."

**Caoutchouc.** *See* "India-rubber."

**Caps and hats.** *See* "Hats."

**Caps (percussion):**
Greenwood (*Payne*), 666.
Fenby, 1431.

**Capstans.** *See* "Hoists."

**Capsuling bottles.** *See* "Bottle stoppers."

**Carboleum or carbonic oil:**
Wirth (*Beins*), 3194.

**Carbonates of soda and potassa.** *See* "Alkalies."

**Carbonic acid gas:**
Haseltine (*Meylert*), 213.
Platt, 1658.
Haseltine (*Stanton*), 2217.
Smyth, 2723.
Wirth (*Beins*), 3194.

**Carburetting air, gases, smoke and steam:**
Harrison, 1.
Lake (*Krausse*), 80.
Broel, 385.
Harrison, 435.
Lafargue, 458.
Emmens, 576.
Wright, 823.
Harrison, 843.
Jukes, 845.
Gardner, 963.
Gardner, 985.
Harrison, 1072.
Clark (*Badè*), 1193.
Edmunds, jun., Wood & Wright, 1355.
Colls, 1533.
Wright, 1597.
Gadd, 1763.
Harrison, 1784.
Caffall, 1799.
Lutschaunig & Ricketts, 1895.
Kidd, 1917.
Baggs, 2000.
Hinks & Holland, 2047.
Ditchfield, Watson & Childs, 2093.
McAvoy, 2152.
Louttit, 2174.
Hunter (*Berry, Randolph & Eichbaum*), 2177.
Ross, 2214.
Salmon, 2419.
Seegers, 2599.
Spice & Hartley, 2603.
Maitland (*Haffman*), 2834.
Johnson (*Wainwright, Wiswell & Hurlbut*), 2840.
Bois, fils, 2936.
Holland, 2971.
Voigt, 3185.
Blake (*Cutting*), 3243.
Gardner (*Frans*), 3264.
Muir, 3319.
Hughes (*Blythe*), 3437.
Seegers, 3441.
Bray, 3490.
Harrison, 3526.
Benson (*Morris, Robinson & Mackenzie*), 3697.
Ramsden, 3796.
Lake (*Fogarty*), 3848.
Ditchfield, Watson & Childs, 4095.

**Cardboard.** *See* "Paper-making."

**Carding buttons.** *See* "Buttons."

**Carding fibrous materials.** *See* "Spinning (carding)."

**Cards; playing cards; card cases:**
Larue, 172.
Pilon, 637.
Newton (*Mauger*), 3448.

**Caromel (cutting).** *See* "Cutting caromel."

**Carpets (felt).** *See* "Fulling."

**Carpets (printing).** *See* "Printing fabrics."

**Carpets (waterproofing).** *See* "Waterproofing."

**Carpets (weaving).** *See* "Weaving carpets."

**Carriage lamps.** *See* "Lamps."

**Carriage spatterdashes:**
Bonnewell, 2606.

**Carriage wheels.** *See* "Wheels for carriages."

**Carriages, cabs, omnibuses, waggons, carts and trucks:**
Parlour, 25.
Burt, 57.
Turton & Rogers, 129.
Delessert, 157.
Goodwin, 630.
Botwood, 742.
Acklom, 890.
Alley, 911.
Standfield, 992.
Clark (*Beery*), 1226.
Bennett, 1284.
Curtis, 1291.
Green, 1307.
Reichenbach, 1334.
Fowler & Mackay, 1388.
O'Berne, 1510.
Henson, 1580.
Botwood, 1615.
Grice & Harrison, 1625.
Campbell, 2088.
Nicholl, 2394.
Dowdall, 2566.
Cleminson, 3215.
Mallam, 3244.
Tuddenham, 3267.
Sterne & Perkins, 3527.
Forder, 3563.
Tamet (*Gombert*), 3854.
Brown, 3858.
Bedington & Greaves, 3872.
Phillips, 4009.
Walker, 4025.
Maxwell, 4084.

**Carriages, &c. (loading, unloading, raising and tipping):**
Clark (*Bocquet & Bénard*), 1884.
Johnson (*Lawton & Gordon*), 2059.
Whitehouse, 2282.
Wade & Cherry, 2298.
Cooke, 2403.
Clark & Standfield, 2498.
Imray (*Société des Mines de Lens*), 2669.
Stone, 2706.
Hunt, 3790.
Bookey, 3875.

**Carriages, &c. (washing):**
Cramp, 1955.

**Carriages for railways.** *See* "Railway carriages."

**Carriages for raising sand, &c. to higher points (self balancing):**
Haseltine (*Du Bois*), 1250.

Carrots (paring and slicing). *See* "Preserving food."

Cartridge extractors:
Scott & Matthews, 138.
Johnson (*Stuart & Vandermeersch*), 155.
Newton (*Broughton*), 256.
Henkel (*Dresse, Laloux & Co.*), 1080.
Deeley & Edge, jun., 1422.
Remington (*Remington & Sons*), 1465.
Johnson (*Palmcrantz, Winborg & Unge*), 1739.
Samain, 1944.
Mills (*Taylor*), 2811.
Harston, 2989.

Cartridges, cases, holders and wads:
Needham, 31.
Horsley, jun., 204.
Eley, 369.
Jones, 386.
Gercke, 548.
Greenwood (*Payne*), 666.
Roberts, 926.
Davey & Watson, 1267.
Bonneville (*Biennait*), 1348.
Fenby, 1431.
Hughes (*Rodier & Bates*), 1467.
Barlow (*Taylor*), 1523.
Mills (*Taylor*), 1549.
Johnson (*Palmcrantz, Winborg & Unge*), 1739.
Miller, 1777
Browne (*Dousset*), 1892.
Quinsac, 2096.
Evans, 2261.
Smith, 2299.
Lake (*Brownell*), 2302.
Newton (*McKeever*), 2348.
Speight, 2397.
Bradley (*Berdan*), 2464.
Lightwood, 3105.
Haseltine (*Wood*), 3537.
Johnson (*Gauthey*), 3630.

Carts. *See* "Carriages."

Carved wood (imitation). *See* "Wood (miscellaneous)."

Cask and barrel tilters:
Wilson, 2112.

Casks; barrels; barrelling; filling up casks; purifying and preventing leakage in casks:
Sowerbutts, 100.
Fremlin, 640.
Paterson, 954.
Fremlin, 1010.
Barlow (*Galland*), 1130.
Hockley, 1382.
Clark (*Gérard & Thuillier*), 1608.
West (*Whymper*), 2155.
Jenkins, 2197.
Ager, 2215.
Haseltine (*Lloyd*), 2311.
Gaillon, 2412.
Knott, 2442.
Mackay, 2513.
Woodley, 2579.
Purnell & Gorrill, 2850.
Moline & Stock, 2852.
Baker, 3009.
Robinson & Smith 3165.
White (*Lloyd*), 3310.
Cooke, 3349.
Haycraft, 3605.

Casks (tapping and venting):
Gedge (*Gouselain*), 202.
Paterson, 954.
Clark (*Nichols*), 1205.
Faulkner & Tatters, 1392.
Ager, 2215.
Ray (*Rousson*), 2466.
Robinson, 2713.
Clarke, 2795.
Purnell & Gorrill, 2850.

Casks (tapping, &c.)—*cont.*
Blott, 3127.
Ambler & Gawthorp, 3392.
D'Humy, 4000.

Casters; caster balls:
Morris & Skinner, 394.
Stocker, 702.
Clark (*Sheldon*), 1746.
Hughes (*Sargent*), 2683.

Casting and moulding metals. *See* "Metals (casting)."

Casting and moulding plastic materials:
Bonneville (*Schenck & Hayek*), 310.
Lyne, 380.
Gilchrist & Thomas, 507.
Noad, 539.
Bodmer, 590.
Rowbotham & Richardson, 684.
Stocker, 702.
Buchanan, 752.
Hamblet & Davies, 780.
Hall, 971.
Coddington (*De Witt & Fairman*), 1004.
Martin, 1070.
Sharpe, 1197.
Shaw, 1377.
Haggett, 1461.
Grimbleby & Grimbleby, 1512.
Rollason, 1610.
Wheeler & Jerome, 1649.
Downing, 1667.
Hodson, 1754.
Rhodes & Miller, 1756.
Wade & Cherry, 1781.
Stubbs, 1814.
Clark (*Bocquet & Bénard*), 1884.
Cochrane, 2113.
Shepherd, 2356.
Speight, 2397.
Johnson (*Payne*), 2798.
Scott (*Florence Manufg. Co.*), 2831.
Milburn & Jackson, 2855.
Hodson, 2923.
Fottrell, 3086.
Mewburn (*Arntz*), 3100.
Williams, 3280.
Bennett, 3345.
Woolley & Padgett, 3348.
Murray, 3366.
Stone, 3387.
Oppenheimer, 3971.
Goulton, 4186.
Holland, 4216.

Castrating sheep, &c. *See* "Medical treatment of animals."

Cattle cribs. *See* "Cribs."

Cattle food. *See* "Food for cattle."

Caulking. *See* "Ship-building."

Ceilings:
Whitburn, 48.
Gardner, 633.
Haggett, 1461.
Robbins, 2116.
Stone, 2915.
Whichcord, 3040.
Thomson, 3957.

Cellars:
Smith (*Giffard, Sublet & Armengaud, jeune*), 627.

Cement; plaster; beton; mortar; burning lime:
Lyttle, 52.
Scott, 154.
Bonneville (*Schenck & Hayek*), 310.
Hunt (*Colfs-Heyne*), 425.
Cowan, 500.
Bodmer, 590.
Jensen (*Erichsen & Maardt*), 602.
Chamberlain, 623.
Goreham, 665.
Rowbotham & Richardson, 684.

Cement, &c.—*cont.*
Chappell, 704.
Buchanan, 752.
Smith, 759.
Smith (*Mabille*), 804.
Forbes, 835.
Houghton, 902.
Martin, 1070.
Forbes, 1191.
Forbes, 1204.
Clough, 1360.
Forbes, 1407.
Tooth & Tooth, jun., 1414.
Ward, 1599.
Rollason, 1610.
Lish, 1621.
Cowan, 1665.
Cowdery, 1680.
Alldridge, 1740.
Forbes, 1764.
Forbes, 1816.
Forbes, 1832.
Forbes, 1999.
Bodmer & Bodmer, 2026.
Robbins, 2116.
Mc Grigor (*Robertson*), 2147.
Simon, 2251.
Harrison, 2468.
Lord, 2541.
Stone, 2678.
Tall, 2733.
Kenyon & Swindells, 2739.
Rowe & Johnson, 2769.
Milburn & Jackson, 2855.
Mewburn (*Arntz*), 3100.
Forbes, 3110.
Wirth (*Beins*), 3194.
Forbes, 3205.
Greenwood, 3238.
Wood, 3255.
Pickwell, 3364.
Scott, 3505.
Forbes, 3530.
Hyatt, 3684.
Scott, 3742.
Forbes, 3783.
Scott, 4099.
Forbes, 4160.
Arrott, 4164.
Holland, 4216.
Power, 4271.
Ward, 4283.

Centre stands:
Rhodes, 3517.

Centrifugal machines:
Boynton & Holmes, 98.
Brotherhood, 287.
Hays & Hays, 487.

Ceramic ware. *See* "Earthenware."

Chaff cutters:
Tester, 299.
Bentall, 318.
Mitchell, 718.
Suckling, 918.
Maude, 1909.
Richmond, 2551.

Chain pumps. *See* "Pumps."

Chains; chain cables; shackles:
Haseltine (*McClure, Graham & Claughton*), 13.
Clark, 361.
Peacock, 364.
Wirth (*Honigmann*), 1864.
Young, 2748.
Riley, 3172.
Byron (*Arnold*), 3247.
Pulvermacher, 3519.

Chairs for railway rails. *See* "Railways (permanent)."

Charcoal and coke; coke forks:
Scott, 154.
Target, 168.
Williams, 205.
Robey, 230.
Williams, 268.
Chantrell, 499.
Barff (*Kidd*), 520.

**Charcoal and coke, &c.—*cont.***
Atkins, 556.
Patison, 569.
Jensen (*Erichsen & Maardt*), 602.
Fawcett, 705.
Smith, 759.
Mickle, 803.
Clark (*Challeton*), 945.
Robey & Chantrell, 957.
Jensen (*Erichsen & Maardt*), 1073.
Clark, 1216.
Wolffram, 1245.
Jobson, 1258.
Brakell, 1286.
Smith, 1478.
Scott, 1509.
Evrard, 1927.
Marley & Thompson, 2055.
Skoines, 2262.
Grice, 2339.
Robey, 2534.
Barlow (*Noury & Masse*), 2771.
Kennelly, 2813.
Kennelly, 3032.
Stone, 3143.
Clark (*Martin*), 3353.
Penrose, 3402.
Owen, 3502.
Scott, 3505.
Bustard, 3533.
Parkes & Parkes, 3691.
Hunt (*Reynoso*), 3717.
White, 3781.
Parker & Wade, 3868.
Walker, 4048.
Siemens, 4075.
Damoiseau, 4103.
Collet & De Lavillasse, 4135.
Livingstone, 4218.
Aitken, 4227.
Lord, 4269.
Clark (*Jenty*), 4294.

**Charging and drawing retorts.** *See* "Retorts."

**Chartometers:**
Morris, 29.
Morris, 3948.

**Chasing and engraving.** *See* "Engraving."

**Checking delivery of articles and sale of liquids:**
Durham & Hupton, 1951.
Robinson, 2713.
Stobart & Allan, 2903.

**Checking receipt of money:**
Wier, 182.
Smith, 352.
Sedgwick & Lake, 1132.
Anderson, 1200.
Caldbeck, 1210.
Black, 1876.
Haas, jun., 2231.
Pereira, 2333.
Hunt, 2709.
Macphail, 2931.
Beser, 3160.
Starr, 3204.
Hill, 3231.
Brownjohn, 3423.
Parlour, 3476.
Starr, 3583.
Dillet, 3960.
Clark & Whitehouse, 4082.

**Checking workmen's attendance:**
Smith, 352.

**Cheese:**
Bousfield (*Freeman*), 960.
Lawrence, 1063.
Bamford, 2313.
Coleman, 2585.

**Chemical plant:**
Smith (*Du Motay*), 328.
Maquay, 450.
Smith (*Giffard, Sublet & Armengaud, jeune*), 627.

**Chemical plant—*cont.***
Robertson, 708.
Hughes (*Daudenart & Verbert*), 938.
Clark (*Nichols*), 1205.
Tooth & Tooth, jun., 1414.
Lyon & Robinson, 1529.
Russell (*Moore & Williamson*), 1556.
Lutschaunig & Ricketts, 1895.
Liotard, jun., 2491.
Hunt (*Reynoso*), 2582.
Kenyon & Swindells, 2739.
Hunt, 2944.
Fottrell, 3086.
Wirth (*Beins*), 3194.
Johnson (*Rymael*), 3360.
Symington, 3482.
Hyatt, 3684.
Fletcher, 3733.

**Cheques and monetary documents:**
Stanfield, 1906.
Hosking, 2248.

**Chests.** *See* "Boxes."

**Chicory:**
Phillips, 831.
Wetherill, 2682.

**Chimneys.** *See* "Flues."

**Chimneys (lamp).** *See* "Lamps."

**China.** *See* "Earthenware."

**Chivalrie.** *See* "Games."

**Chlorine and chlorides:**
Bentley & Garth 145.
Gutensohn, 258.
Deacon, 505.
Hargreaves & Robinson, 828.
Kuhlmann, 847.
Weldon, 868.
Wigg, 1725.
Arrott, 2236.
Haithwaite, 2318.
Weldon, 2449.
Kenyon & Swindells, 2739.
Whitthread, 3169.
Dale & Dale, 3191.
Wirth (*Beins*), 3194.
Deacon, 3253.
Weldon, 3805.
Collingridge 3830.
Kenyon & Swindells, 4013.
Damoiseau, 4103.

**Chlorodyne.** *See* "Medicines."

**Chromium compounds:**
Fitz-Gerald & Molloy, 2102.

**Chucks:**
Page, 107.
Smith & Coventry, 3878.
Newton (*Westcott*), 4205.

**Churns:**
Yates & Watson, 1664.
Craig & Craig, 1840.
Brin, 3477.
Bradford, 3481.
McDowell, 4008.

**Cigar lighters.** *See* "Fusees."

**Cigarettes.** *See* "Tobacco."

**Cigars.** *See* "Tobacco."

**Cinder sifters.** *See* "Sifting."

**Cisterns; tanks; vats; reservoirs:**
Lyttle, 52.
Carmichael, 72.
Holman, 136.
Davies, 210.
Bonneville (*Schenck & Hayek*), 310.
Rydill, 376.
Bowden, 399.
Stoney, 550.
Emmens, 576.
Lee & Pringle, 594.

**Cisterns, &c.—*cont.***
Clark, 611.
Smith (*Giffard, Sublet & Armengaud, jeune*), 627.
Lake (*Proudfoot*), 634.
Rowbotham & Richardson, 684.
Hoey, 712.
Jukes, 736.
Barlow (*Gallaud*), 827.
Heaton & Giddings, 872.
Tylor, 907.
Symington, 912.
Paterson, 954.
Gardner, 963.
Lake (*Prall*), 1051.
Jobson, 1066.
Vickers, 1110.
Haggett, 1461.
Lyon & Robinson, 1529.
Davies, 1579.
Wotherspoon, 1600.
Charles, 1614.
Steen, 1626.
Cowan, 1665.
Ronald & Farmer, 1676.
Huntington, 1753.
Clayton, 1775.
Hammett, 1805.
Shanks, 2021.
Horner & Dobson, 2037.
Evans, 2142.
Hunter (*Berry, Randolph & Eichbaum*), 2177.
Sweet, 2192.
Imray (*Gordon*), 2209.
Ager, 2215.
Gaillon, 2414.
Fisher, 2435.
Robertson, 2684.
Robinson, 2713.
Clark (*Pavy*), 2746.
Carter, 2755.
Clark (*Boys*), 2807.
Valon, 3005.
Fottrell, 3086.
Sweet, 3554.
Haseltine (*Henderson*), 3652.
Deighton, 3672.
Mills (*Sim*), 3763.
Ross, 3807.
Underhay & Carter, 3916.
Duty, 4128.
Richardson, 4136.
Esplen, 4189.
Sheppard, 4267.

**Citric acid.** *See* "Acids."

**Clamps:**
Goodchild & Hay, 1003.
Brydon & Davidson, 1991.

**Clasps.** *See* "Buckles."

**Clay and loam (treating):**
Batley, 242.
Bodmer, 590.
Engledue, 745.
Smith, 759.
Harrison & Butler, 882.
Hall, 971.
Forbes, 1191.
Sharpe, 1197.
Tinne, 1419.
Wade & Cherry, 1781.
Clark (*Bocquet & Bénard*), 1884.
Milburn & Jackson, 2004.
Lord, 2541.
Stone, 2678.
Henderson, 2860.
Greenwood, 3238.

**Cleaning and polishing.** *See* "Grinding, polishing."

**Cleaning and polishing liquids.** *See* "Polishes (liquid)."

**Cleaning and scraping ships.** *See* "Ship-building."

**Cleaning casks.** *See* "Casks."

**Cleaning cereals.** *See* "Grain and seeds (treating)."

Cleaning chimneys. *See* "Flues."

Cleaning cotton. *See* "Fibres (cleaning)."

Cleaning horses. *See* "Harness."

Cleaning knives and forks. *See* "Knife boards."

Cleaning pipes and tubes. *See* "Tube cleaners."

Cleaning surface condensers. *See* "Condensers."

Cleaning yarn. *See* "Finishing."

Cleats for blinds. *See* "Window-blinds."

Clerical costumes. *See* "Wearing-apparel."

Climbing hooks:
Hodson, 93.

Clinical thermometers. *See* "Surgery."

Clipping grass. *See* "Horticulture."

Clipping horses. *See* "Shearing."

Clips and files. *See* "Files."

Clips or shears. *See* "Scissors."

Clocks; watches; time-keepers; time balls; clock cases:
Parker-Rhodes, 173.
Gedge (*Pasquier*), 295.
Lake (*Ritchell*), 558.
Newton (*Mildé & Vimard*), 706.
Baines, 820.
Krauth, 1067.
Goettler (*Courvoisier*), 1114.
Morgan-Brown (*Tosselli*), 1440.
Brooks & Bull, 1501.
Aspinall, 1624.
Jacquemin, jun., 1663.
Harrison, 1717.
Smith & Smith, 2019.
Frank (*Eason*), 2020.
Haas, jun., 2231.
Holten & Varley, 2446.
Eamonson, 2526.
Corbett, 2604.
Smith (*Tremeschini et Cie*), 2671.
Henderson (*Dubreuil*), 2768.
Clark (*Teske*), 2824.
Moseley, 2960.
Sutton (*Roberts*), 3016.
Sudworth, 3229.
Schoof, 3617.
Haas, jun., 3945.

Clod crushers. *See* "Ploughing."

Clogs; clog irons:
Barker, 582.
Morris, 1033.

Clutches:
Richards, 518.
Griffin (*Babbett, Miles & Hickey*), 908.
Weston, 960.
Fenby, 1431.
Mirrlees (*Weston*), 1678.
Stebins, Rosenfield, Mayers & Leon, 2057.
Muir & Caldwell, 2381.
Mills (*Knous*), 2880.
Weston, 3023.
Mills (*Stiles*), 3210.
Robertson, Orchar, Muir & McIlwham, 3427.
Whitaker, 4158.

Coal boxes or scuttles:
Remmett, 869.

Coal (getting). *See* "Mining."

Coal (picking and screening). *See* "Sifting."

Coal savers. *See* "Fuel (saving)."

Coating, covering and lining cylinders and rollers:
Knowles & Barnes, 105.
Pitt & Cox, 273.
Sholl, 525.
Gillett, 754.
Johnson (*Passieux*), 1151.
Walton, 1683.
Smith (*Laviarde*), 2501.
Haseltine (*Whitehead & Atherton*), 3047.
Pope, 3405.
Hyatt, 3634.
Hyatt, 4241.

Coating and covering paper:
Lake (*Beck*), 795.
Buncher, 1538.
Clark (*D'Argy*), 1590.
Rollason, 1610.
Robbins, 2116.
Speight, 2397.
Beckett, 2592.

Coating asphalted pavements. *See* "Road making."

Coating bricks, tiles, stone and cement:
Robbins, 2116.
Holland, 4216.

Coating cloth, leather and fabrics:
Rowbotham & Richardson, 684.
Lake (*Beck*), 795.
Hughes (*Kellogg*), 855.
Buncher, 1538.
Rollason, 1610.
Wilkinson, 3083.
Dodge, 3425.
Toussaint, 3753.
Griswold (*Clark*), 4140.

Coating glass:
Brown (*Dodé*), 802.
Nickoll, 4106.
Gedge (*Laujorrois*), 4195.

Coating metals
Wiley, 83.
Johnson (*Masson*), 406.
Nangle, 495.
Norris, 504.
Wilde, 618.
Redman, 732.
Lake (*Beck*), 795.
Thomas & Morris, 1049.
Maybery, 1236.
Fearn, 1277.
Gedge (*Trottier*), 1299.
Parsons, 1511.
Buncher, 1538.
Sprague, 1558.
Rollason, 1610.
Cutter (*Willis*), 1646.
Llewellyn, 1669.
Richards, 1681.
Roberts, 1700.
Scott, 1986.
Sterling, 2022.
Greer, 2101.
Robbins, 2116.
Lake (*Brownell*), 2302.
Cunliffe, 2802.
Crowther & Morgan, 2839.
Calvert, 2963.
Grimshaw, 2999.
Ragot, 3039.
Morewood & Rogers, 3125.
Morewood & Rogers, 3126.
Weil & Lyte, 3136.
Delalot, 3322.
Byron (*Arnold*), 3365.
Hyatt, 3380.
Walters & Rees, 3497.
Haseltine (*Wood*), 3567.

Coating metals—*cont.*
Fenby, 3590.
Hyatt, 3684.
Edwards, 4133.
Morewood & Rogers, 4242.

Coating or covering wire:
Newton, 1007.
Rowett, 2077.
Robbins, 2116.
Moffatt, 2386.
Moseley, 2969.
Wilkinson, 3063.
Fottrell, 3086.
Morewood & Rogers, 3125.
Morewood & Rogers, 3126.
Hyatt, 3256.
Hyatt, 3380.
Hooper, 3780.
Hooper & Dunlop, 3997.
Rowett, 4079.
Madsen, 4167.
Rubery, 4193.

Coating or lining moulds:
Sharpe, 1197.

Coating ships' bottoms. *See* "Ships' bottoms (coating)."

Coating the grain side of skins and hides preparatory to tanning. *See* "Leather."

Coating wood:
Redman, 732.
Lake (*Beck*), 795.
Hockley, 1382.
Lyttle, 1434.
Buncher, 1538.
Rollason, 1610.
Roberts, 1700.
Robbins, 2116.
Mackay, 2513.
Leech (*Malpas*), 2567.

Cocks and taps:
Johnson (*Picq*), 43.
Shanks, 199.
Gedge (*Gouesslain*), 202.
Redgrave & Wright, 223.
Johnson (*Digney, Digney, Lartigue & Forest*), 247.
Mewburn (*Deplechin & Mathelin*), 409.
Brown, 447.
Guattari, 453.
Humber & Haworth, 662.
Wright, 823.
Heaton & Giddings, 872.
Tylor, 907.
Powell, 1325.
Faulkner & Tatters, 1392.
Bostelmann, 1447.
Abel (*Westinghouse, jun.*), 1735.
Clayton, 1775.
Lamb, 1966.
Horner & Dobson, 2037.
Evans, 2142.
Sweet, 2192.
Schlesinger (*Grout*), 2312.
Wirth (*Kernaul*), 2494.
Wheeler, 2503.
Farron, 2569.
Lilley, 2609.
Robinson, 2713.
Blott, 3127.
Wirth (*Beine*), 3194.
Ambler & Gawthorp, 3392.
Sweet, 3554.
Soul (*Korwan & Flurscheim*), 3697.
Gurney, 3610.
Boyell, 3639.
Haseltine (*Henderson*), 3632.
Sutcliffe & Sutcliffe, 3679.
Kenyon, 3796.
Ross, 3807.
Underhay & Carter, 3916.
Mossenger, 4001.
Mather (*Lavater*), 4017.
Autier (*Falconnier*), 4202.
Singleton, 4244.

**Cocoa:**
Cole, 2418.
Branson, 3456.

**Coffee; substitute for coffee; coffee pots, caddies and cosies:**
Liebert, 701.
Clark (*Howe*), 1428.
Lake (*Ashcroft*), 1753.
Guenard, 2075.
Etzensberger, 2448.
D'Humy, 2465.
Morton, 2663.
Francis & Addiscott, 3031.
Liebert, 3139.
Hyatt, 3356.
Branson, 3456.
Hyatt, 3684.
Lake (*Moorey*), 4089.

**Coffeetina.** *See* "Coffee."

**Coffer dams:**
Paddison, 193.

**Coffins:**
Rowbotham & Richardson, 684.
Ingall & Parsons, 2191.
Farmer & Turner, 2826.

**Coiling twisted fibres for transport.** *See* "Presses."

**Coins; coin blanks:**
Smith (*Smith*), 2074.

**Coke.** *See* "Charcoal."

**Colcothar.** *See* "Oxides."

**Collars:**
Clark (*Levy*), 433.
Lake (*Flatley & Marson*), 1968.

**Collodion:**
Bickford (*Spooner & Pyroxyline Manufactg. Co.*), 1170.

**Columns; pillars:**
Hunt, 142.
Lee & Rogers, 190.
Dixon, 223.
Rowbotham & Richardson, 684.
Coddington (*De Witt & Fairman*), 1004.
Sterling, 2022.
Milroy, 2228.
Clark (*Pavy*), 2746.
Cunliffe, 2902.
Fottrell, 3066.
Hyatt, 3652.
Hyatt, 3684.
Hornblower 3714.
Hyatt, 3788.
Johnson (*Cottrell*), 4102.

**Combing fibrous materials.** *See* "Spinning (carding)."

**Combustible concrete.** *See* "Fuel."

**Combustion or economisation of fuel.** *See* "Fuel (saving, &c.)"

**Commodes.** *See* "Waterclosets."

**Compasses for ships:**
Paget (*Kalmar*), 5.
Croudace, 977.
Croudace, 1719.
Casey & Liddon, 3180.
Finlay, 3281.

**Compensator frames:**
Smith (*Tremeschini et Cie*), 2671.

**Concentrators; concentrating liquids and solutions:**
Miller, 925.
Marsden, 3018.
Peer, Lundquist & Rutherford, 3847.

**Concert rooms.** *See* "Buildings."

**Concrete.** *See* "Cement."

**Condensers and condensing:**
Thompson, 42.
Clark (*Audouin & Pelouze*), 109.
Cox & Cox, 214.
Newton (*Burdon*), 257.
Rydill, 376.
Andrews, 404.
Körting, 626.
Henry (*Collett & De Lavillasse*), 650.
Tommasi, 696.
Grimston, 792.
Morgan-Brown (*Littmann*), 793.
Watson, 824.
Holt, 876.
Jones, 894.
Moseley, 916.
Cook, 986.
Lawrence, 1083.
West, 1158.
Todd, 1389.
Lyttle, 1434.
Haggett, 1461.
Burnett, 1493.
Webster, 1524.
Wallace, 1539.
Ashworth, 1569.
Imray (*Loiseau*), 1623.
Casper (*Desuarte & Farinaux*), 1636.
Henderson (*Demailly & Brunseaux*), 1644.
Rust & Nicholls, 1873.
Curtis (*Mills*), 1924.
Miller, 2031.
Hatschek, 2042.
Spence (*Zündel*), 2210.
Wright, 2243.
Newton (*Babbitt*), 2271.
Wirth (*Scheller & Berchtold*), 2380.
Hurd & Simpson, 2594.
Carey, 2680.
Hampton, 2699.
Johnson (*Lobdell*), 2750.
Rowe & Johnson, 2769.
Munts & Sharp, 2843.
Fyfe & Bowers, 2873.
Haseltine (*Kirk & Griffith*), 2904.
Haseltine (*Bass*), 2905.
Newton (*Babbitt*), 2962.
Johnson (*Henry*), 2975.
Marsden, 3018.
Paxman, 3021.
Boas, 3171.
McCarter, 3214.
Blacker, 3269.
Massey & Hill, 3313.
Galloway, 3369.
Warren, 3495.
Boyman, 3515.
Bower & Bower, 3523.
Phibbs, 3585.
Clark (*Borden & Borden*), 3675.
Clark (*Borden & Borden*), 3676.
Hess, 3692.
Holman, 3699.
Webb, 3748.
Tasker, 3800.
Render, 3815.
Morton, 3902.
Todd, 4056.
Spice, 4178.
Esplen, 4189.

**Conducting fluids.** *See* "Pipes."

**Confectionary; pastry:**
Boes, 34.
Defeher, 311.
Boes, 808.
Conradi, 3124.
Loomes, 3300.
Hunt (*Reynoso*), 4290.

**Conservatories.** *See* "Horticulture."

**Converting iron into steel.** *See* "Metals (smelting)."

**Converting motions.** *See* "Propelling or driving."

**Cooking:**
Salmon, 147.
Plessner, 180.
Jones, 283.
Clark, 286.
Dennis, 301.
Silber, 334.
Lewis, 575.
Owen & Hill, 583.
Lightowler & Best, 617.
Hughes (*Grimm & Corvin*), 700.
Robertson, 708.
Shepherd, 711.
Barraclough, 756.
Lake, 787.
Boes, 808.
Gratrix, 833.
Wood, 901.
Midgley, 949
Haley, 978.
Thornton, 989.
Wolstencroft, 1020.
Skoines, 1086.
Brampton, 1104.
Landau, 1131.
Newton & Dawson, 1176.
Edmunds, jun., Wood & Wright, 1355.
Clough, 1360.
Giles, 1366.
Booth, 1373.
Foster & Foster, 1375.
Torr & Johnstone, 1452.
Haggett, 1461.
Webster, 1524.
Walker, 1525.
Barraclough, 1566.
Clark, 1761.
Williams, 1773.
Bopp-Du-Pont, 2076.
Evans, 2142.
Bousfield (*Mackinnon*), 2235.
Salmon, 2419.
Tabor, 2437.
Liotard, jun., 2491.
Dean, 2731.
Musgrave & Shillington, 2749.
Summers, 2822.
Barraclough, 2857.
Edwards, 2974.
Day & Walker, 3089.
Crane, 3094.
Brady, 3131.
Ritchie, 3227.
Napier, 3357.
Jaques, 3370.
Isherwood, 3413.
Matterson, 3469.
Wadsworth, 3491.
Bentley & Mullard, 3509.
Clark, 3521.
Banks, 3539.
Rydill, 3567.
Peacock & Peacock, 3641.
Pearson, 3667.
Hyatt, 3684.
Graham, 3734.
Warren, 3765.
Fisken, 3900.
Shorland, 3909.
Russell, 3941.
Whittle, 3983.
Moore, 4019.
Mc Sherry & Nisbet, 4035.
Barnes & Chalk, 4069.
Akester, 4172.
Lake (*Roudebush*), 4209.
Jacquet, 4229.

**Cooling air:**
Lake (*Martin & Beath*), 290.
Körting, 626.
Smith (*Giffard, Sublet & Armengaud, jeune*), 627.
Barlow (*Galland*), 1346.
Barlow (*Galland*), 1443.
Wirth (*Windhausen*), 3143.
Harrison, 3760.
Morton, 3902.

**Cooling and preserving food.** *See* "Preserving food."

**Cooling and ventilating buildings, &c.** *See* "Ventilating."

Cooling and ventilating carriages. *See* "Ventilating carriages."

Cooling candle moulds. *See* "Candles."

Cooling condensers, cylinders and pistons:
Cook, 986.
Plessner, 1604.
Imray (*Otto*), 1628.
Imray (*Otto*), 1946.
Hatschek, 2042.
Cole & Acton, 2276.
Sturgeon, 2279.
Bonneville (*Grüninger*), 2305.

Cooling dampers:
Davies, 1160.

Cooling furnaces and ovens:
Lake (*Büttgenbach*), 560.
Deakin, 672.
Jukes, 736.
Newbold, 1677.
Howatson, 1742.
Nimmo, 2162.
Cain, 2363.
Hathaway, 2521.
Voisin, 3252.
Danks, 3566.
Moore, 3774.
Adair, 4076.
Johnson (*Pernot*), 4291.

Cooling liquids. *See* "Refrigerating."

Cooling manure:
Johnson (*Coignet, Son & Co.*), 305.

Cooling wood boilers:
Seitz, 197.

Cop tubes. *See* "Bobbins."

Copying:
Mathis, 867.
Mathis, 1502.
Frèret (*Godard*), 2079.
Tinsley (*Shriver*), 2443.
Newton (*Teysonnière*), 3814.

Coral (imitation):
James, 3359.

Cordage. *See* "Ropes."

Cork; corks; bungs; bung inserters:
Thwaites & Stephens, 97.
Smith, 324.
Wharidale, 327.
Salleron, 509.
Jones, 1043.
Van Laak & Gillespie, 1062.
Palliser, 1213.
Atkin, 1361.
Rayner, 1420.
Murphy, 2166.
Stewart, 2206.
Cogswell, 2496.
Hughes (*Peck*), 2670.
Clarke, 2795.
Purnell & Gorrill, 2850.
Schreiber & Passavant, 3048.
Robinson & Smith, 3165.
Martin, 3251.
Mitchell, 3859.
Léchaudée, 4132.
Codd & Foster, 4268.

Corkscrews; drawing corks:
Donisthorpe, jun., 1858.
Mabson, 2211.

Corn bins:
Clark (*Pavy*), 2746.

Corn mills. *See* "Grinding corn."

Cornices. *See* "Mouldings."

Corpses (preserving):
Lindemann, 3871.

Corrugating metals. *See* "Metals (forging)."

Corsets. *See* "Stays."

Cosmetics:
Haseltine (*Raynolds & Co.*), 2600.

Cotter pins. *See* "Linchpins."

Cotton cleaning, cotton gins. *See* "Fibres (cleaning)."

Counterpanes or quilts:
Kippax, 1722.

Counting; machine counters:
Muirhead & Wood, 244.
Smith, 352.
Raworth, 869.
Durham & Hupton, 1951.
Richmond, Messrs., 2146.
Holten & Varley, 2446.
Moseley, 2969.
Lafargue, 3651.
Cooke, 3705.
Ramsden & Dawes, 3860.
Millar, 3950.
Clark & Whitehouse, 4082.

Coupling. *See* "Joining."

Coverlets. *See* "Upholstery."

Cowls for chimneys. *See* "Flues."

Cowls for ventilating. *See* "Ventilating."

Crabs. *See* "Hoists."

Cranes. *See* "Hoists."

Cranes for supplying water to tanks. *See* "Water cranes."

Cranks; substitutes for cranks:
Lake (*Ritchell*), 558.
Bousfield (*Bickemeyer*), 1794.
Curtis (*Mills*), 1924.
Earl of Caithness, 3453.

Crape:
Henson, 1580.

Craping hair, &c. *See* "Crimping."

Cravats. *See* "Neck-ties."

Cream jugs. *See* "Jugs."

Cribs and racks for cattle and sheep:
Elwell, 3831.

Cricket bats. *See* "Games."

Crimping and craping hair and fibres:
Donisthorpe & Clarke, 106.
Pitcher, 146.
Pitcher, 2723.
Pitcher, 3656.

Crimping fabrics. *See* "Goffering."

Crops (collecting and removing). *See* "Reaping."

Crops (gathering and tying up). *See* "Reaping."

Crossing channels by carriages suspended on framework. *See* "Railways."

Crotchet needles. *See* "Needles."

Crucibles and melting pots:
Noad, 539.
Johnson (*Holmes*), 1231.
Browne (*Foundries & Forges Co.*), 1574.
Willans, 1990.
Lake (*Mühlig*), 2716.
Johnson (*Baker*), 3744.

Cruet glasses:
McKee, 2530.

Crumb cloths:
Lake (*Crossley*), 2293.
Richardson, 3010.

Cryolites (preparing artificial). *See* "Alumina."

Crystal:
Smith (*Du Motay*), 338.
Brasseur & Wogler, 720.
Hughes (*Daudenart & Verbert*), 959.
Hughes (*Daudenart & Verbert*), 3014.
Gedge (*Laujorrois*), 4195.

Crystallised ulmine (ovens for converting into coke). *See* "Ovens and kilns."

Cucumbers (paring and slicing). *See* "Preserving food."

Cuffs:
Clark (*Levy*), 433.
Pulvermacher, 1067.

Cultivating land. *See* "Ploughing."

Cuminoscopes. *See* "Optical instruments."

Cupola furnaces. *See* "Furnaces and cupolas."

Cups. *See* "Drinking vessels."

Curing meats. *See* "Preserving food."

Curing smoky chimneys. *See* "Flues."

Current meters:
Moore, 3939.

Curtains and curtain fixtures. *See* "Upholstery."

Cutting, sawing and planing wood:
Jelley & Jones, 271.
Talcott (*Ayres*), 414.
Robinson & Smith, 673.
Kettle, 813.
Allcock, 1038.
Clark (*Carpenter*), 1090.
Baron de Mouncie, 1094.
Clarke, 1175.
Wilson, 1290.
Tinne, 1419.
Rayner, 1420.
Fenby, 1451.
Clark (*Gérard & Thaillier*), 1605.
Lake (*Allen*), 1727.
Lake (*Whitney*), 1861.
Western, 2069.
Livsey (*Hall*), 2235.
Hughes (*Hills*), 2756.
Osbourn, 2823.
Kingston, 3000.
Bradwell, 3097.
Robinson & Smith, 3165.
Western & Hamilton, 3303.
Pace, 3272.
Haseltine (*Wyss & Studer*), 3467.
McFarlane, 3844.
Worssam, 4206.

**Cutting and dressing stone and slate:**
Hindley, 178.
Haseltine (*Dean*), 259.
Sears, 349.
Gabriel, 638.
Clark (*Stacy*), 2012.
Stone, 2678.
Darby & Hobrow, 2858.
Stevenson, Ree & Dunlop, 3248.
Thompson, 4052.
Johnson (*Cottrell*), 4102.

**Cutting caromel and like substances:**
Callard, 3254.

**Cutting clay and chalk:**
Gay, 95.
Batley, 242.

**Cutting cloth, leather and paper:**
Newton (*Wilson, Miller & Folk*), 19.
Mills & Monkhouse, 123.
Trippe, 134.
Coubro, 185.
Hunt (*Hodges*), 874.
Hughes, 1096.
Harris, 1383.
Bonneville (*Warth*), 1572.
Lott, 1606.
Haseltine (*Howlett & Onderdonk*), 1622.
Holland (*Johnston*), 1912.
Mills & Monkhouse, 1971.
Osbourn, 2823.
Lake (*Semple*), 2837.
Davies (*De Saumery*), 2847.
Wilson, 3237.
Newton (*Mauger*), 3448.
Morgan-Brown (*Crowell*), 3677.
Clark (*De Saumery*), 3835.
Monkhouse, 3918.
Delavault, 3987.
Hunt (*Swain & Todd*), 4280.

**Cutting coal.** *See* "Mining."

**Cutting corkwood and bark:**
Murphy, 2166.
Schreiber & Passavant, 3048.
Martin, 3251.

**Cutting files.** *See* "Files."

**Cutting flock:**
Johnson (*Pitts, Aldrich & Marble*), 2932.

**Cutting glass and gems:**
Whipp & Mellor, 132.
Whipp & Mellor, 2275.
Curtis (*Field*), 2389.
Harrison, 2848.
Clark (*Hermann*), 2963.
Ramsey, 3094.

**Cutting gorse.** *See* "Gorse cutters."

**Cutting ice slabs:**
Kyle, 2410.

**Cutting meat and vegetables:**
Hunt, 3534.

**Cutting metals:**
Newton (*Wilson, Miller & Folk*), 19.
Buckley, 44.
Kesterton, 54.
Henson, 191.
Haseltine (*Alexander*), 326.
McIntyre, 424.
Rylands, 517.
Strickland, 984.
Whitley, Hoyle & Haigh, 1016.
Roed, 1052.
Hughes, 1096.
Newton (*Lowman*), 1153.
Havenhand, 1167.
Cartwright, 1427.

**Cutting metals—*cont.***
Grice & Harrison, 1625.
Donald & Atkey, 1653.
Fox, 1759.
Tannett, Craven & Fox, 1847.
Barrow, 2154.
Tidcombe, jun., 2517.
Stoker, 2525.
Farmer & Turner, 2826.
Harrison, 2848.
Lowry, 2864.
Rogers (*Mullholland*), 2945.
Grimshaw, 3099.
Mills (*Stiles*), 3210.
Sarjeant, 3355.
Fairbank (*Vanstone & Hollings*), 3440.
Lake (*Blake*), 3475.
Beesley, Messrs., 3498.
Holland (*Boin*), 3547.
Hunt (*Hawes*), 3556.
Icely, 3594.
Johnson (*Mazeron*), 3698.
Haseltine (*National Horse Nail Co.*), 3737.
Spencer, 3757.
Hughes (*Wood*), 3834.
Smith & Coventry, 3878.
Lancaster, 3922.
Lancaster, 4037.
Cornforth, 4057.
Ashford, 4063.
Browne (*Durand & Duborget*), 4080.
Newton (*Tous y Mirapeix*), 4098.
Haseltine (*Lindsay*), 4113.
Lake (*Rhode Island Horse-shoe Co.*), 4263.
Hughes (*Wheeler*), 4265.

**Cutting or opening tins.** *See* "Opening tins."

**Cutting peat:**
Henderson, 758.
Harrison & Butler, 882.
Healy, 1069.
Clark, 1216.
Trumble, 1519.
Clark (*Bocquet & Bénard*), 1884.
Hinton, 2714.
Henderson, 2860.
Kennelly, 3032.
Walker, 3432.
Livingstone, 4218.

**Cutting pile fabrics during and after process of weaving:**
Bowker, 3.
Mercer & Worthington, 647.
Brookes (*Wattisme & Roettger*), 1357.
Brakell, 2548.
Bayart, 2949.
Dobson & McKnight, 3128.
Keighley & Netherwood, 3398.

**Cutting screws and screw threads.** *See* "Screws."

**Cutting turnips.** *See* "Turnip cutters."

**Cyanogen and cyanides:**
Hills, 1274.
Ellis, 1285.
Rowley, 3588.

**Cyder:**
Ker, 2123.

**Cylinders, rollers and drums (miscellaneous) making and casting:**
Parlour, 144.
Clark (*Levy*), 433.
Robertson, 448.
Bodmer, 590.
Smith (*Giffard, Sublet & Armengaud, jeune*), 627.
Wyatt, 632.
Lake (*Proudfoot*), 635.
Morgan-Brown (*Giacomini*), 687.
Thomas (*Postle*), 709.

**Cylinders, &c.—*cont.***
Mather, 878.
Lake (*West & Goodwin*), 933.
Watson & Robertson, 974.
Tullis, 1022.
Allcock, 1038.
Morgan-Brown (*Hersey, Hersey & Gray*), 1233.
Henderson, 1442.
Donald & Atkey, 1693.
Imray (*Otto*), 1946.
Garrett, 2054.
Mathers, 2081.
Whitehead, 2187.
Sturgeon, 2279.
Mathews, 2428.
Lord, 2541.
Basin, 2552.
Leffler, 2590.
Cohrs, 2630.
Newton (*Todd*), 2821.
Toulson, 2846.
Barker, 2885.
Brewer (*Von Zahony*), 2912.
Haseltine (*Whitehead & Atherton*), 3047.
Lake (*Storer*), 3070.
Forbes & Hamilton, 3162.
Mills (*Burgess*), 3589.
Hyatt, 3684.
Martin, 3751.
Williams, 3856.
Smith (*Poole*), 3933.
Lauth (*Williams*), 3947.
Samuel (*Stewart*), 3979.
Johnson (*Schmid*), 4071.
Smith, 4226.

**Cylinders, rollers and drums (miscellaneous) arranging and using:**
Foulis, 59.
Rydill, 82.
Knowles & Barnes, 105.
Holman, 136.
Masourine, 207.
Wilson, 241.
Edwards & Taft, 373.
Stirling, 374.
Foster, 384.
McIntyre, 424.
Sholl, 525.
Alley, 537.
Edwards, 541.
Johnson (*Ostrander*), 557.
Billington, 622.
Lake (*Proudfoot*), 635.
Wharton & Lister, 683.
Tommasi, 696.
Talbot, 716.
Ivory, 717.
Stone, 723.
Brakell, 726.
Leigh, 738.
Wright, 823.
Hayward, 870.
Wilson, 886.
Jones, 894.
Oldroyd, Oldroyd, jun., Woodcock & Coulter, 898.
Coogan, 899.
Greenwood, 927.
Hounsell, 934.
Smith, Stake, Tolson, Firth & Bradley, 951.
Strickland, 984.
Gillon & Dujardin, 1025.
Forrest, 1059.
Healy, 1069.
Nixon & Winterbottom, 1074.
Myers, 1077.
Harlow, 1127.
Edwards, 1134.
Newton (*Lowman*), 1153.
Morrison, 1163.
Harrop, 1166.
Holden, 1184.
Spence (*Girardon*), 1188.
Clark (*Hillman*), 1227.
Pullman, jun., & Edmonds, 1242.
Wise (*Greindl*), 1252.
Wood, 1263.
Edwards, 1280.
Shaw, 1324.
Critchlow, 1351.
Desmares, 1378.

**Cylinders, &c.—*cont.***
Coddington (*Gally*), 1395.
Haggett, 1461.
Kitchin, 1479.
Plessner, 1604.
Savage, 1730.
Ashcroft, 1758.
Pilkington, 1776.
Jones, 1872.
Scott, 1925.
Duckham, 1959.
Butchart, 1987.
Halpin & Alliott, 2039.
Stebins, Rosenfield, Mayers & Leon, 2057.
Johnson (*Sellers & Sellers*), 2060.
Guenard, 2075.
Wilson, 2120.
Chapman, 2281.
Richardson, 2424.
Ellison, 2429.
Harding & Harding, 2499.
Turner, 2533.
Cumming, 2538.
Andrew, 2542.
Canning & Mayor, 2554.
Sandiford, 2626.
Hinton, 2714.
Jones, 2797.
Harris, 2804.
Walker, 2879.
Johnson (*Pitts, Aldrich & Marble*), 2932.
Johnson (*Henry*), 2975.
Haseltine (*Whitehead & Atherton*), 3047.
Johnson (*Rinek*), 3051.
Buchholz, 3068.
Lake (*Morrell*), 3104.
Graham, 3114.
Morewood & Rogers, 3126.
Stone, 3143.
Young, 3156.
Holliday, Messrs., 3407.
McGlashan, 3465.
Ward, 3472.
Haseltine (*Wyss & Studer*), 3487.
Owen, 3506.
Tongue (*Vigour*), 3520.
Wilson, 3531.
Kingdon, 3598.
Haseltine (*Henderson*), 3652.
Jensen (*Jespersen*), 3657.
Hess, 3692.
Imray (*Hämmerle*), 3704.
Haseltine (*National Horse Nail Co.*), 3737.
Mackie & Faure, 3832.
Peer, Lundquist & Rutherford, 3847.
Steel, 3890.
Newton (*Greene*), 3899.
Cunningham, 3962.
Tasker (*Blakey*), 3980.
Baerlein, 4014.
Jones, 4023.
Gardner & Orme, 4086.
Tatham, 4097.
Steel, 4110.
Oldroyd, Oldroyd, jun., Woodcock & Coulter, 4157.
Browne (*Alcan*), 4191.
Worssam, 4206.
Lake (*Rhode Island Horse-shoe Co.*), 4210.
Leach, 4223.
Mills (*Fanchamps-Nicolai*), 4270.
Johnson (*Asbury*), 4292.

**Cylinders and rollers for printing:**
Stroudley & Drummond, 6.
Mills & Monkhouse, 123.
Duncan & Wilson, 383.
Parker, 535.
Noad, 539.
Newton (*Bingham, Bingham, Van Allen & Stone*), 608.
Densmore & Farnham, 668.
Simon (*Bullock Printing Machine Co.*), 958.
Hughes, 1096.
Malcolm, 1401.
Clegg, 1577.
Mills & Monkhouse, 1971.
Gray, 2084.
Clark (*Townsend*), 2190.

**Cylinders and rollers—*cont.***
Mercer, 2459.
Wilson, 3237.
Clark (*Gaiffe*), 3449.
Monkhouse, 3918.
Fuller (*Ashley*), 3973.
Hunt (*Swain & Todd*), 4280.

**Cylinders for steam-engines:**
Milner, 196.
Foster, 252.
Rydill, 376.
Hedges, 436.
Robertson, 448.
Adams, 552.
Wood, 578.
Lee & Pringle, 594.
Grimston, 792.
Holt, 876.
Cook, 986.
Black, 1367.
Benson (*Cope & Maxwell*), 1387.
Tinne, 1419.
De Negri, 1437.
Haggett, 1461.
Williamson & Parsell, 1595.
Picking & Hopkins, 1745.
Luke, 1771.
Bousfield (*Eickemeyer*), 1794.
Murdoch (*Beds & Co. & Farcot & Sons*), 1862.
Simpson, 1949.
Mills (*Bottum*), 1983.
Handyside, 2013.
Colebrook, 2033.
Gerring, 2044.
Colebrook, 2164.
Cramp, 2180.
Bonneville (*Grüninger*), 2305.
Inglis & Spencer, 2325.
Haseltine (*Bayre & Stuart*), 2354.
Wirth (*Scheller & Berchtold*), 2380.
Muir & Caldwell, 2381.
Alley, 2409.
Hoyois, 2490.
Wirth (*Kernaul*), 2494.
Brunton, 2573.
Johnson (*Lobdell*), 2750.
Allen, 2785.
Jones, 2797.
Macintosh, 2844.
Haseltine (*Hoyt*), 2943.
Johnson (*Henry*), 2975.
Haseltine (*Hamilton*), 3258.
Petrie, 3263.
Trossin, 3401.
Pope, 3405.
Barcroft, 3428.
Worth, 3478.
Walker, Messrs., 3501.
Bower & Bower, 3528.
Hyatt, 3684.
Wilson, 3883.
Hutchison, 3894.
Davis, 3995.
Southwood & Mathews, 4002.
Morgan, 4061.
Johnson (*Schmid*), 4071.
Browne (*Dreyfus*), 4072.
Heaton & Heaton, 4174.
Hyatt, 4241.


## D.


**Daggers:**
Kilner & Friston, 1093.

**Dampers for regulating combustion.** *See* "Air supplying to furnaces."

**Damping and dewing fabrics:**
Stewart, 1659.
Barraclough, 1904.

**Damping paper:**
Clinch, 2002.
Thompson, 2757.

**Damping paper—*cont.***
Gray, 3095.
Gray & Gray, 3292.
Smith & Fountain, 3509.

**Damping warp thread:**
Knowles & Barnes, 105.
Knowles & Chalk, 1356.
Whitehead, 1578.
Singleton, 2344.
Richmond, Richmond & Dodgeon, 2252.
Coates, 3686.
Singleton, 4244.

**Damping yarn in spinning.** *See* "Spinning, twisting."

**Dams.** *See* "Weirs."

**Dancing saloons.** *See* "Buildings."

**Date indicators.** *See* "Calendars."

**Deafness (treating).** *See* "Medical treatment of man."

**Decanters.** *See* "Bottles."

**Decanting wines, &c.** *See* "Bottles."

**Decarburating cast iron.** *See* "Metals (smelting)."

**Deckle straps.** *See* "Paper making."

**Decolourising liquids:**
Scott, 154.

**Decolourising sugar.** *See* "Sugar."

**Decorating buildings (screens for):**
Haweis, 963.

**Decorative materials:**
Whitburn, 48.
Robbins, 2116.
Hide, 2308.

**Decorticating grain and seeds.** *See* "Hulling."

**Deed boxes.** *See* "Boxes."

**Dentistry:**
Coxeter, 302.
Bickford (*Spooner & Pyrozylin Manufg. Co.*), 1170.
Jamieson, 1715.
Lake (*Morrison*), 2012.
Coxeter (*Chance*), 3572.
Malone, 3811.
Clarkson, 3964.

**Deodorising:**
Target, 168.
Robey, 230.
Latham, 331.
Chantrell, 499.
Scott, 570.
Wadsworth, 841.
Symington, 912.
Robey & Chantrell, 997.
Roberts, 1121.
Scott, 1445.
Scott, 1509.
Moule & Girdlestone, 1867.
Weare, 1957.
Townsend, 1967.
Heap, 1969.
Knott, 2442.
Robey, 2534.
Rawson, Sillar, Slater & Wilson, 2662.
Hughan, 2760.
Lake (*Storer*), 2870.
Featherstonhaugh, 3289.
Metcalfe & Massingham, 3323.
Medlen, 3426.
Speir, 3726.

**Deodorising**—*cont.*
Scott, 3742.
White, 3781.
Gibson, 3785.
Head, 3827.

**Desks.** *See* "Furniture (tables)."

**Despatch boxes.** *See* "Boxes."

**Despatches (conveying and transmitting):**
D'Arros, 1000.
Crespin, 2172.
Roturier, 3057.
Phillips, 4130.

**Dessert services:**
Rhodes, 3517.
Johnson (*Maseron*), 3698.

**Detaching horses from carriages.** *See* "Harness."

**Detergents.** *See* "Soap."

**Dies; die presses:**
Newton (*Wilson, Miller & Folk*), 19.
Seiferheld (*Deregnaucourt*), 103.
Fawcett, 471.
Newell, 514.
Talbot, 716.
Wise (*McFethries*), 725.
Fish, 905.
Lake (*Krauss*), 944.
Whitley, Hoyle & Haigh, 1016.
Newton (*Lowman*), 1153.
Newton (*Wilmot*), 1415.
Haggett, 1461.
Grice & Harrison, 1625.
Liernur, Kops & Martignoni, 1648.
Smith, 1803.
Smart & Fixter, 1820.
Lake (*Sedgwick*), 2049.
Johnson (*Herzberg & Herzberg*), 2058.
Macrone & Mackenzie, 2390.
Banks, 2468.
Foxwell, 3545.
Haseltine (*National Horse Nail Co.*), 3737.
Fawcett, 4045.

**Diggers (steam).** *See* "Ploughing."

**Dinner services:**
Rhodes, 3517.

**Dips for sheep, &c.** *See* "Medical treatment of animals."

**Discs (pneumatic):**
Wells, 219.

**Dishes and plates; dish and plate covers; meat stands:**
Hughes, 96.
Wells, 219.
Newell, 514.
Hughes, 1096.
Haggett, 1461.
Tallerman, 1972.
Jobbins (*Fischer*), 2018.
Isaacs & Isaacs, 3319.
Hyatt, 3356.
Hyatt, 3684.

**Disinfecting:**
Boundy, 17.
Scott, 154.
Target, 168.
Robey, 230.
Dennis, 301.
Latham, 331.
Chantrell, 499.
Webb, 728.
Roberts, 1121.
Scott, 1445.
Scott, 1509.
Brown, 1555.

**Disinfecting**—*cont.*
Moule & Girdlestone, 1867.
Rawson, Sillar, Slater & Wilson, 2663.
Banner, 2691.
Whitthread, 3169.
Johnson (*David*), 3190.
Buchan, 3293.
Brin, 3477.

**Disintegrators:**
King, 116.
Crispin, 122.
Curtis (*Gould*), 769.
Harrison & Butler, 882.
McEwen, 915.
Carr, 1417.
Haggett, 1461.
Sirtaine, 2485.
Douglas, jun., 3624.
Bass, 3718.
Simpson & Simpson, 4184.

**Distance travelled.** *See* "Indicating distance."

**Distilling alcoholic and spirituous liquors; clarifying spirits:**
Clark (*Audouin & Pelouze*), 109.
Smith (*Giffard, Sublet & Armengaud, jeune*), 627.
Miller, 925.
Woods & De Malortie, 1006.
Wallace, 1539.
Lees & Faulkner, 1612.
Haseltine (*Pope & Sawyer*), 1641.
Lovibond, 1844.
Miller, 2031.
Neil, 2067.
Ker, 2123.
Saldanha Paes & Hopcraft, 2484.
Marsden, 3018.
Johnson (*David*), 3190.
Johnson (*Eymael*), 3360.
Harvey, 3416.
Griffin, 3450.
Symington, 3482.
Haseltine (*Wyss & Studer*), 3487.
Hyatt, 3788.
Morton, 3902.
Johnson (*De Meritens & Kresser*), 3937.
Kruger & Colani, 3949.
Collet, De Lavillasse & Testud de Beauregard, 4166.
Alleyn, 4256.

**Distilling ammonia.** *See* "Alkalies."

**Distilling coal in gas making.** *See* "Gas."

**Distilling oils:**
Thompson, 42.
Imray, 325.
Barff (*Kidd*), 520.
Wright, 823.
Rowley, 853.
Clark (*Challeton*), 945.
Henderson, 1327.
Colls, 1469.
Alley, 1633.
Haseltine (*Lloyd*), 2311.
Wotherspoon & Foulis, 2391.
Robinson, 2404.
Meldrum, 2407.
Hazeltine (*Lloyd*), 2761.
Kennelly, 2813.
Muir, 3318.
Johnson (*Eymael*), 3360.
Symington, 3482.

**Distilling water.** *See* "Filtering."

**Ditches.** *See* "Drains."

**Ditches (implement for crossing):**
Hodson, 93.

**Diving; diving dresses:**
Landau, 1131.
Imray (*Fayol*), 1852.

**Docks; floating docks; lock chambers:**
Mc Clean, 41.
Paddison, 193.
Stoney, 550.
Williamson & Parsell, 1596.
Mellor, 1767.
Lamb, 2467.
Robertson, 2684.
Weil & Lyte, 3136.

**Dog grates.** *See* "Fire-places."

**Door calls.** *See* "Bells."

**Doors and gates; door furniture:**
Parlour, 25.
Burton, 47.
Whitburn, 48.
Wiles, 65.
Lee & Rogers, 190.
Nichols, 215.
Redgrave & Wright, 223.
Gardner, 633.
Cooper, 653.
Rydill, 691.
Botwood, 742.
Fish, 884.
Newton & Dawson, 1176.
Whitwell, 1288.
Ecroyd & Wass, 1318.
Weigelin, 1338.
Haggett, 1461.
Carpenter, 1481.
Wotherspoon, 1600.
Rhoades & Barrett, 1694.
Healey, 1788.
Evans, 1970.
Wyatt, 1973.
Bousfield (*Moody*), 2023.
Hayward, 2050.
Campbell, 2088.
Robbins, 2116.
Easton, Pole & Whichcord, 2149.
Mansbridge, 2219.
Laverack, 2241.
Johnson (*Hyatt*), 2366.
Hodgson, 2518.
Gardner & Jennings, 2586.
Rydill, 2624.
Wirth (*Eichwede*), 2660.
Parkes, 2890.
Leggett, 2906.
Partridge, jun., 3199.
Hickinbotham, Marshall & Adams, 3206.
Mollam, 3244.
Nott, 3265.
Richardson, 3283.
Dunk, 3436.
Forder, 3563.
Hyatt, 3658.
Jubber, 3661.
Hyatt, 3684.
Fear & Wilson, 3689.
Edwards, 3905.
Wyatt, 3955.
D'Humy, 4000.
Hall, 4022.
Walker, 4025.
Adair, 4076.
Maxwell, 4084.

**Doubling fibres.** *See* "Spinning."

**Drags or drag sheets for boats and rafts:**
Newton (*Fleetwood*), 2388.

**Drains; gullies; sewers; cleaning drains:**
Erskine & Denby, 192.
Pilling & Harlow, 480.
Greenwood, Saville & Morton, 508.
Scott, 570.
Thornalley, 739.
Dean, 849.
Wolstencroft, 1020.
Myers, 1077.
Bonner, 1265.
Haggett, 1461.
Barrow & Barrow, 1548.
Williamson & Parsell, 1596.
Richards, 1681.

**Drains, &c.—*cont.***
Hodson, 1754.
Wirth (*Honigmann*), 1864.
Shepherd, 2356.
Main, 2544.
Hurd & Simpson, 2594.
Robertson, 2684.
Stone, 2706.
Hodson, 2923.
Kennelly, 3062.
Fottrell, 3086.
Liernur, 3168.
Pickwell, 3364.
Clark (*Fitz Randolph*), 3544.
Alexander, 3576.
Head, 3827.
Messenger, 4001.
Stanford, 4039.
Ramsay, 4092.
Phillips, 4130.
Simpson & Simpson, 4184.

**Draw plates or blowers.** *See* "Air supplying to furnaces."

**Drawers or pantaloons:**
Cooper, Clarke, Donisthorpe & Corah, 3113.
Hart, 3913.
Lake (*Fitz-Patrick*), 4040.

**Drawing; drawing instruments; black-boards and tablets.**
Tongue (*Susanne*), 140.
Johnson (*Reckendorfer*), 443.
Norris, 504.
Haseltine (*Campbell*), 779.
Cory, 1240.
Lüdeke, 2892.
Lake (*Morrison*), 3012.
Cluzet & Simon, 3299.
Boyd, 4179.

**Drawing and charging retorts.** *See* "Retorts."

**Drawing fibres.** *See* "Spinning, twisting."

**Drawing wire.** *See* "Wire-working."

**Dredgers:**
Speight, 2397.

**Dredging machines:**
Napier, 246.
Johnson (*Bergeron*), 1308.
Keen & Dence, 1732.
Buquoy, 2303.
Robertson, 2684.
Hutton, 3239.
Rowan, 3665.
Ball, 4067.

**Dress improvers.** *See* "Dresses."

**Dresses and other garments; ladies' underclothing:**
Pulvermacher, 1067.
Kennett, 1174.
Henson, 1580.
Daniels, 2631.
Sénéchal, 2928.
Williamson, 3211.
Petremant (*Le Cerf*), 3701.
Brown, 3858.
Clarke & Donisthorpe, 3869.

**Dressing cases:**
Nisbet, 2111.
Scruton, 3722.

**Dressing fabrics.** *See* "Finishing."

**Dressing flour.** *See* "Grinding corn."

**Dressing shirts.** *See* "Shirts."

**Drilling or making holes.** *See* "Boring."

**Drills (manure).** *See* "Manure-distributors."

**Drills (seed).** *See* "Sowing."

**Drinking fountains.** *See* "Fountains."

**Drinking vessels:**
Redgrave & Wright, 223.
Richardson, 676.
Jobbins (*Fischer*), 2018.
Isaacs & Isaacs, 2519.
Rhodes, 3517.
Hyatt, 3684.
Hubert, jun. & Boissel, 4011.

**Drugs (sifting).** *See* "Sifting."

**Drums and rollers.** *See* "Cylinders."

**Dry gas-meters.** *See* "Meters."

**Dry rot in timber (preventing).** *See* "Wood (seasoning)."

**Drying and expressing moisture (miscellaneous):**
Rydill, 82.
Konn (*Lodighin*), 91.
Imray, 325.
Rydill, 329.
Hunt (*Colfs-Heyne*), 425.
Clark (*Levy*), 433.
Hays & Hays, 437.
Mackie, 445.
Barff (*Kidd*), 520.
Alley, 537.
Greenwood, Saville & Morton, 568.
Jensen (*Ericksen & Maardt*), 602.
Körting, 626.
Hughes (*Grimm & Corvin*), 700.
Phillips, 821.
Mather, 878.
Morgan-Brown (*Hersey, Hersey & Gray*), 1233.
Gedge (*Trottier*), 1299.
Clark (*Delrieu, Pernoud & Co.*), 1370.
Skelton & Mobberley, 1647.
Wheeler & Jerome, 1649.
Newall, 1741.
Mackie & Faure, 1830.
Roberts, 1857.
Milner, 1997.
Bodmer & Bodmer, 2026.
Cochrane, 2113.
Rydill, 2624.
Wirth (*Windhausen*), 3142.
Wirth (*Von Schlemmer*), 3294.
Galloway, 3369.
Salisbury, 3394.
Newton (*Baudouin*), 3548.
Collet, De Lavillasse & Testud de Beauregard, 4166.
Browne, 4279.

**Drying and expressing moisture from bricks and cement:**
Bacon, 232.
Derham (*Morand*), 411.
Greenwood, Saville & Morton, 568.
Jensen (*Ericksen & Maardt*), 602.
Goreham, 665.
Smith, 759.
Bonner, 1265.
Weigelin, 1358.
Cowdery, 1680.
Pickwell, 3364.

**Drying and expressing moisture from fuel, peat, &c.:**
Boynton & Holmes, 98.
King, 116.
Rydill, 376.
Hays & Hays, 437.
Vincent, 565.
Campbell, 656.
Fawcett, 705.
Cadett, 744.
Engledue, 745.
Henderson, 758.

**Drying, &c.—*cont.***
Ramsden, 873.
Harrison & Butler, 882.
Clark, 1216.
Wolffram, 1245.
Brakell, 1298.
Barker, 1321.
Smith, 1342.
Stenson & Ouff, 1466.
Trumble, 1519.
Williams, 1773.
Milburn & Jackson, 2004.
Bodmer & Bodmer, 2026.
Hunt, 2385.
Stephens, 2581.
Hinton, 2714.
Barlow (*Noury & Masse*), 2771.
Kennelly, 2813.
Milburn & Jackson, 2855.
Henderson, 2860.
Kennelly, 3052.
Stone, 3143.
Stone, 3387.
Clark (*Loiseau*), 3419.
Mitchell, 3664.
Walker, 4046.
Livingstone, 4218.
Bodmer, 4234.

**Drying and expressing moisture from manure and sewage:**
Target, 168.
Robey, 230.
Johnson (*Coignet, Son & Co.*), 265.
Latham, 331.
McDougall, 542.
Jensen (*Ericksen*), 1055.
Alsing, 1319.
Scott, 1445.
Bodmer & Bodmer, 2026.
Rawson, Sillar, Slater & Wilson, 2662.
Milburn & Jackson, 2855.
Lake (*Storer*), 3070.
Curie, 4181.
Bodmer, 4234.

**Drying and expressing moisture from skins, fabrics, yarn, wool, waste, animal and vegetable substances, food:**
Rydill, 82.
Bentley & Garth, 145.
Rydill, 229.
Kenyon, Taylor & Kenyon, 482.
Briggs, Willan & Lewis, 494.
Greenwood, Saville & Morton, 568.
Morgan-Brown (*Giacomini*), 657.
Phillips, 821.
Jones, 894.
Baerlein, 913.
Wise, jun., 1096.
Smith, 1224.
Clark (*Delrieu, Pernoud & Co.*), 1370.
Brewer (*Pasquier*), 1631.
Lake (*Ashcroft*), 1783.
Guenard, 2075.
Singleton, 2244.
Petrie, jun., 2272.
Giles, 2307.
Clark, 2469.
Lake (*Locke*), 2557.
Hunt (*Reynoso*), 2582.
Wetherill, 2683.
Toulson, 2846.
Hatton & Hatton, 2884.
Wirth (*Dold*), 3285.
Bradford, 3461.
Worrall, 3969.
Samuel (*Stewart*), 3973.
Baerlein, 4014.
Birch, 4234.
Singleton, 4244.
Alleyn, 4256.

**Drying steam.** *See* "Steam-boilers and generators."

**Dust bins or boxes:**
Chantrell, 499.
Ward, 663.

**Dust screens or guards for railway carriages:**
Johnson (*Wellby*), 721.
Childs, 2896.

**Dyeing fabrics, fibres, yarns, skins, leather, &c.:**
Carmichael, 72.
Rydill, 229.
Radwen, 417.
Ramsden, 519.
Henderson (*Demailly*), 519.
Hunt, 766.
Hunt & Hopwood, 783.
Oldroyd, Oldroyd, jun., Woodcock & Coulter, 896.
Clark (*Digeon & Goldsmith*), 1331.
Clark (*Marble*), 1557.
Hodges, 1672.
Milner, 1997.
Beanns, 2028.
Dargue, 2036.
Barlow, jun. (*Sargent*), 2314.
Worrall, 2365.
Croft, 2384.
Clark, 2489.
Pickles, Smithson & Pickles, 2564.
Fox & Fox, 2703.
Neville, 2918.
Whiston, 3049.
Scott, 3087.
Whiston, 3121.
Shorrock, 3332.
Imray (*Peyer*), 3350.
James, 3369.
Johnson (*Bymael*), 3360.
Holliday, Messrs., 3407.
Holliday, Messrs., 3408.
Holliday, 3584.
Johnson, 3601.
Ray (*Corron & Vignat*), 3615.
Marlin, 3825.
Macgregor, 3853.
Brown, 3868.
Paget (*Bérenger*), 3953.
Mallison, 3993.
Baerlein, 4014.
Johnson (*Frezon, sen.*), 4027.
Dawson & Slater, 4043.
Oldroyd, Oldroyd, jun., Woodcock & Coulter, 4157.
Casthelas, 4225.
Birch, 4234.
Wuth (*Forster*), 4286.

**Dyes and printing-colours:**
Rowley, 853.
Athow, 1043.
Clark (*Digeon & Goldsmith*), 1331.
Johnson (*Croissant & Bretonnière*), 1489.
Clark (*Marble*), 1557.
Caspers, 1689.
Lord, 2541.
Abel (*Gottheil*), 3060.
Newton (*Teysonnière*), 3176.
Dentith, 3446.
Rowley, 3568.
Smith (*Meloille*), 3767.
Casthelas, 4225.
Wuth (*Forster*), 4286.

**Dynamometers:**
Varley & Furness, 2324.

## E.

**Earthenware; porcelain; ceramic ware; joining china:**
Whitburn, 48.
Bacon, 232.
Derham (*Morand*), 411.
Hunt (*Colfs-Heyne*), 425.
Stocker, 702.
Engledue, 745.
Smith, 759.
Phillips, 821.
Wood, 901.

**Earthenware, &c.—*cont.***
Robey, Banks & Forester (*De Bettignies, Bros.*), 970.
Bonner, 1265.
Ecroyd & Wass, 1318.
Weigelin, 1358.
Nicklin & Frost, 1396.
Hunt (*Mendheim*), 1410.
Billups & Lee, 1449.
Torr & Johnstone, 1452.
Haggett, 1461.
Kith, 1473.
Minton, 1526.
Barrow & Barrow, 1546.
Skelton & Mobberley, 1647.
Cowdery, 1680.
Minton, 1709.
Ray (*Heilmann*), 1960.
Bodmer & Bodmer, 2026.
Fréret (*Godard*), 2079.
Robbins, 2116.
Harrison, 2468.
Rice, 3216.
Dean, sen., 3587.
Hyatt, 3684.
Hornblower, 3714.
Burroughes, 4074.
Holland, 4216.

**Easels:**
Bramley & Green, 1961.

**Ecclesiastical decorations:**
Haweis, 963.

**Economising fuel.** *See* "Fuel."

**Edge tools.** *See* "Tools."

**Effervescing draughts.** *See* "Aërating."

**Elastic compounds.** *See* "India-rubber."

**Electric telegraphs.** *See* "Telegraphs (electric)."

**Electricity, galvanism and magnetism (as applied to miscellaneous purposes):**
Wiles, 65.
Konn (*Lodighin*), 91.
Thorneloe, 402.
Lake (*Garau, Ticozzi & Co.*), 441.
Harrison, 528.
Atkins, 556.
Wilde, 618.
Bolton & Webber, 686.
Tommasi, 696.
Newton (*Mildé & Vimard*), 706.
McEvoy, 740.
Hunt (*Reynoso*), 799.
Sadler, 883.
Tongue (*Lufbery*), 973.
Merriman, 993.
D'Arros, 1000.
Johnson (*Fontaine*), 1180.
Weber, 1270.
Brookes (*Wattinne & Roettger*), 1357.
Cederholm & Peterson, 1394.
Courtenay, 1450.
Sprague, 1558.
Bousfield (*Col. Von Scheliha*), 1585.
McEvoy, 1586.
Haseltine (*Pope & Sawyer*), 1641.
Haseltine (*Oldershausen*), 1697.
Clark (*Planté*), 1713.
Harrison, 1717.
Bétis, 1728.
Abel (*Westinghouse, jun.*), 1735.
Cooke, 1903.
Werdermann, 1934.
Evans, 1970.
Siemens (*Siemens & Altenecke*), 2006.
Newton (*Wallace*), 2015.
Smith & Smith, 2019.
Sandy, 2053.
Smith (*Smith*), 2074.
Greer, 2101.
Fitz-Gerald & Molloy, 2102.
Fitz-Gerald & Molloy, 2103.

**Electricity, &c.—*cont.***
Spence (*Zündel*), 2210.
Field, 2254
Brown, 2346.
Clark (*Achard*), 2350.
Holten & Varley, 2446.
Greenwood, 2545.
Walker, 2568.
King, 2574.
Mathieson, 2588.
Palmer (*Gaume*), 2618.
Clark, 2629.
Hill, 2710.
Caldbeck, 2715.
Palmer, jun. (*Palmer*), 2875.
Wilkinson, 2924.
Fréret (*Guerot & Lesourd*), 2956.
Brain, 2976.
Moore & Courtenay, 3078.
Weil & Lyte, 3136.
Alley, 3148.
Bezer, 3160.
Wirth (*Beins*), 3194.
Smith, 3313.
Wood, 3395.
Newton (*Camacho*), 3461.
Symington, 3482.
Faure, 3540.
Hicks, 3647.
Hyde, Hyde & Aldis, 3761.
Hyatt, 3788.
Poole, 3823.
Stearns, 3879.
Verdeau, 3943.
Clark & Whitehouse, 4082.
Highton, 4277.

**Electricity, galvanism and magnetism (in metallurgy):**
Johnson (*Masson*), 406.
Werdermann, 474.
Werdermann, 476.
Norris, 504.
Wilde, 618.
Francis (*La Rue*), 930.
Fearn, 1277.
Francis (*La Rue*), 1865.
Werdermann, 1933.
Byron (*Arnold*), 3565.
Haseltine (*Wood*), 3537.

**Electricity, galvanism and magnetism (in printing and ruling paper):**
Newton (*Averell*), 20.
Hunt (*Anders & Welch*), 40.
Jensen (*Olsen*), 149.

**Electricity, galvanism and magnetism (in signalling and communicating apparatus):**
Robinson, 67.
Highton, 85.
Preece, 153.
Johnson (*Digney, Digney, Lartigue & Forest*), 247.
Elmsley, 251.
Bernstein, 332.
Bernstein, 333.
Carr & Barlow, 344.
Haseltine (*Smith*), 351.
Clark (*Tesse, Lartigue & Prud'homme*), 490.
Owen, 534.
Visalt & Bernier, son, 543.
Baines, 820.
Newton (*Grechi*), 1172.
Abel (*Westinghouse, jun.*), 1735.
Tyer, 1845.
Evans, 1970.
Browne (*O'Lawlor*), 2327.
Spagnoletti, 2401.
Walker, 2568.
Lake (*Pope*), 2656.
Hornstedt, 2808.
Moseley, 2969.
Haseltine (*Hall & Van Blarcom*), 3290.
Foster, 3316.
Stevens, 3619.
Neale, 4143.
Pignel, 4253.

**Electricity, galvanism and magnetism (remedial or curative):**
Chislett, 87.
Grigg, 786.
Pulvermacher, 1067.
Bartlett, 1567.
Pulvermacher, 1969.
Hoghton, 2343.
Pulvermacher, 3519.
Darlow & Fairfax, 3736.

**Electro-magnetic engines:**
D'Arros, 1000.
Spence (*Girardon*), 1188.
Newton (*Wallace*), 2015.
Greer, 2101.
Palmer (*Gaume*), 2618.
Moore & Courtenay, 3078.
Faure, 3540.
Verdeau, 3943.

**Electro-plating.** *See* "Coating metals."

**Electrotyping:**
Noad, 539.

**Elevators.** *See* "Hoists."

**Embankments:**
Paddison, 193.

**Embossing; producing raised patterns:**
Cumming, 267.
Edwards, 837.
Dunnett, 880.
Hughes, 1096.
Gough, 2106.
Banks, 2468.
Cumming, 2538.
Rhodes, 3517.
Howard, 3662.

**Embroidering.** *See* "Sewing."

**Emery powder; substitutes for emery paper or cloth:**
Scott, 154.
Roberts, 1857.
Wilkinson, 4134.

**Enamelling; enamels:**
Brown (*Dodé*), 802.
Billups & Lee, 1341.
Torr & Johnstone, 1452.
Robbins, 2116.
Mackay, 3129.
Stevenson, Ree & Dunlop, 3248.
Hyatt, 3380.
Barton, 3967.

**Engraving; etching:**
Brown (*Dodé*), 802.
Clegg, 1577.
Lake (*Sedgwick*), 2049.
Bradley, 2316.
Banks, 2468.
Moore & Le Mousan, 2474.
Barlow & Barlow, jun., 3688.

**Engravings.** *See* "Pictures."

**Entrenchments.** *See* "Trenches."

**Envelopes; wrappers:**
Gordon, 10.
Halfpenny, 262.
Cumming, 267.
Haddan (*Dangoise*), 790.
Dunnett, 880.
Sauret, 887.
Patrick & Tracy, 1337.
Cumming, 2538.
Goodall, 2741.
Haddan (*Dangoise*), 2900.
Hyatt, 3684.
Fuller (*Ashley*), 3974.
Delavault, 3967.

**Envelopes, hairs or wrappers used in seed crushing:**
McDonald, 1139.
Eskrett & Searle, 1391.
Mannini, 1530.
Lake (*McDonald*), 1702.
Eskrett & Searle, 1792.
Goulton, 4186.

**Erasers:**
Johnson (*Reckendorfer*), 443.

**Etching.** *See* "Engraving."

**Ether:**
Warren, 3495.

**Evaporating pans.** *See* "Heating and evaporating."

**Excavating:**
Gay, 95.
Masourine, 207.
Napier, 246.
Reidy, 848.
Sauvée (*Zouboff & Grounmere*), 1497.
Batho (*Bruce*), 1809.
Clark (*Bocquet & Bénard*), 1884.
Clark & Standfield, 2498.
Robertson, 2684.
Stone, 2706.
Clark (*Fitz Randolph*), 3544.
Rowan, 3665.
Batho & Hedderwick, 3708.
Wood, 3821.
Bookey, 3875.
Ball, 4087.

**Excreta (treating).** *See* "Manure."

**Exhausting air.** *See* "Air pumps."

**Exhausting steam, water, &c.:**
Robertson, 248.
Shaw, 455.
Barff (*Kidd*), 520.
Körting, 626.
Brakell, 726.
Darlington, 1168.
Johnson (*David & Fichet*), 1222.
Wright, 2243.
Haseltine (*Wyss & Studer*), 3487.
Bower & Bower, 3528.
Holman, 3699.
Collet, De Lavillasse & Testud de Beauregard, 4166.
Browne, 4279.

**Exhibiting pictures.** *See* "Optical instruments."

**Exhibiting placards, &c.** *See* "Advertising."

**Explosive compounds.** *See* "Gunpowder."

**Explosive liquids (holding, transporting and distributing):**
Lake (*Moride*), 4120.

**Expressing moisture.** *See* "Drying."

**Extinguishing fire.** *See* "Fire-engines."

**Extinguishing gas.** *See* "Gas extinguishers."

**Extracting grease from wool for utilisation.** *See* "Grease."

**Extracting grease from wool or cleaning wool.** *See* "Fibres (cleaning)."

**Extracting metals from their ores.** *See* "Metals (smelting)."

**Extracts:**
Henley, 212.
Cox & Cox, 214.
Etzensberger, 2448.
Johnson (*Symael*), 3340.

**Eyelets:**
Bromhead, 3334.


## F.


**Fabrics; adhering flock to fabrics:**
Paddison, 193.
Lund, 840.
Hughes (*Kellogg*), 855.
Hinchliffe, 2064.
Campana (*Pistorosi*), 2105.
Torrey, 2375.
Hughes (*Lush*), 2383.
Rowan, 2507.
Newton (*Waring*), 2743.
Hyatt, 3256.
Marlin, 3825.
Brown, 3853.
Hinchliffe, 4004.
Griswold (*Clark*), 4140.

**Fabrics (elastic):**
Bowra & Wood, 228.
Clark (*Levy*), 433.
Turner (*Rightler*), 3043.
Turner, 3414.
Turner, 3786.
Turner, 4042.

**Fabrics (producing relief design on):**
Desmarres, 1378.

**Fans.** *See* "Blowing-engines."

**Fans (ladies') =**
James, 33509.

**Fares and payments (collecting):**
Dougall, 23069.

**Fats.** *See* "Oils (animal)."

**Faucets; aërating faucets:**
Gedge (*Gouesslain*), 202.
Hunt (*Bate*), 2794.

**Feathers:**
Smith (*Melville*), 3767.
Marlin, 3825.

**Feed mechanism for machines.** *See* "Propelling."

**Feeding bottles; teats:**
Smith, 324.
Stocker, 702.
Burley, 844.
Lynch, 2458.
Hickisson, 2463.
Fellows, 4129.
Stocker, 4199.

**Feeding calves and other young animals:**
Tucker, 1527.
O'Dwyer, 1942.
O'Dwyer, 1953.

**Feeding steam-boilers with water.** *See* "Steam-boilers (water-feeding)."

**Feeding troughs or bins for sheep, &c.** *See* "Troughs."

**Felted fabrics.** *See* "Fulling."

**Fences; hurdles; palisades:**
Lee & Rogers, 190.
Henson, 191.
King, Messrs., 467.
Welch, 778.
Lyttle, 1434.
Garrard, 2090.
Cunliffe, 2802.
Hyatt, 3380.
Elwell, 3831.

**Fenders:**
Radcliffe, 895.

**Ferneries:**
Haggett, 1461.

**Ferrules:**
Greenwood (*Payne*), 666.
May, 2417.

**Fertilisers.** *See* "Manure."

**Festooned edging.** *See* "Trimmings."

**Fettling or lining furnaces.** *See* "Furnaces."

**Fibres (obtaining from filamentous substances):**
Bevan & Drew, 931.
Fay (*Shedd*), 1101.
Johnson (*Tito-Vignolo*), 1150.
Chamas, Bouju & Bouju, 1206.
Abel (*Jourdeuil, Parisot & Guasco*), 2072.
Campana (*Pistoresi*), 2105.
Bevan, 2718.
Graham, 3114.
Young, 3156.
Bevan, 3333.
Jensen (*Jespersen*), 3657.

**Fibres (oiling):**
Cockshott, 567.
Barraclough, 1904.

**Fibres (opening, extracting grease from, cleaning):**
Craven, 23.
Rydill, 83.
Bentley & Garth, 145.
Cardon-Wamain, son, 203.
Fairburn, 260.
Leach, 357.
Edwards & Taft, 373.
Dunn & Prangley, 420.
Greenwood, Saville & Morton, 568.
Johnson (*Purvis*), 733.
Johnson (*Purvis*), 734.
Bevan & Drew, 931.
Hughes (*Daudenart & Verbert*), 959.
Fay (*Shedd*), 1101.
Rickards, 1399.
Rickards, 1460.
Mannini, 1530.
Lewis & Hawkins, 1543.
Casper (*Desuarte & Farinaux*), 1636.
Walton, 1683.
Tatham, 1908.
Abel (*Von Loewis*), 1938.
Campana (*Pistoresi*), 2105.
Petrie, jun., 2272.
Sirtaine, 2485.
Sault, 2504.
Granville & Johnson, 2540.
Deininger, 2601.
Dunn & Prangley, 2627.
Bevan, 2718.
Scharr, 2859.
Walker, 2879.
Hughes (*Daudenart & Verbert*), 3014.
Haseltine (*Whitehead & Atherton*), 3047.
Graham, 3114.
Bevan, 3333.
Spencer, Washington & Oddy, 3346.

**Fibres—*cont.***
McGlashan, 3465.
Blake, 3777.
Samuel (*Stewart*), 3979.
Browne (*Alcan*), 4191.
Lunge (*Kraut*), 4212.

**Fibres (packing).** *See* "Presses."

**Fibres (preserving from decay):**
Hughes (*Blythe*), 3437.

**Figure improvers.** *See* "Dresses."

**Files and clips:**
Clark (*Hannart & Mamelzer*), 397.
Fox, 1962.

**Files and rasps:**
Haseltine (*Alexander*), 326.
Morgan-Brown (*Weed*), 1218.
Weed, 3630.

**Filters; filtering; purifying water:**
Bischof, 38.
Scott, 154.
Hamilton, Preston & Jones, 187.
Redgrave & Wright, 223.
Chantrell, 499.
Atkins, 556.
Pengilly, 563.
Scott, 570.
Henderson (*Demailly*), 591.
Houghton, 902.
Tylor, 907.
Symington, 912.
Robey & Chantrell, 957.
Watson & Robertson, 974.
Pearse, 1044.
Kennard, 1156.
Alsing, 1319.
Nolden, 1552.
Brown, 1555.
Marston & Kleinau (*Teysonniere*), 1670.
Maguire, 1701.
Newall, 1741.
Weare, 1957.
Hatschek, 2042.
Leigh, 2071.
Haseltine (*Lloyd*), 2311.
Marsden & Collins, 2317.
Knott, 2442.
Hamilton & Preston, 2450.
Jacobsen, 2454.
Jacobsen, 2455.
Wright, 2470.
Robey, 2534.
Newton (*Sinclaire*), 2572.
Stephens, 2581.
Casper (*Farinaux*), 2602.
Wahab, 2673.
Hampton, 2699.
Théry, 2743.
Goodall, 2791.
Milburn & Jackson, 2855.
Newton (*Claude*), 3177.
Normandy, 3326.
Towle, 3331.
Johnson (*Eymael*), 3360.
Johnson (*Perroy*), 3377.
Greenstreet, 3485.
Fraser & Watson, 3632.
Hyatt, 3788.
Twibill, 3791.
Collingridge, 3830.
Paget (*Bérenger*), 3953.
Wildsmith, 4007.
Mather (*Lavater*), 4017.
Ramsay, 4092.
Perrett, 4249.

**Filters and sieves (steam):**
Imray (*Peyer*), 3350.

**Finings (brewers').** *See* "Brewing."

**Finishing, glazing or burnishing leather:**
Gillett, 754.
Allen 3888.

**Finishing, glazing or burnishing paper:**
Jeffs, 527.
Brewer (*Von Zahony*), 2912.

**Finishing hats.** *See* "Hats."

**Finishing photographic portraits.** *See* "Photography."

**Finishing tin and terne plates.** *See* "Coating metals."

**Finishing twine.** *See* "Ropes."

**Finishing woven fabrics, yarns, &c. (dressing, polishing, singeing, shearing, folding and pressing):**
Carmichael, 72.
Hartley, 81.
Prince (*Flinsch*), 461.
Jeffs, 527.
Schofield & Mellor, 546.
Turner & Baldwin, 604.
Humber & Haworth, 662.
Robertson, 706.
Whitehead, 743.
Capreell, 760.
Noble & Armitage, 952.
Hacking & Hacking, 1015.
Wood, 1262.
Mendel, 1272.
Booth & Gardam, 1603.
Brewer (*Pasquier*), 1631.
Firth, 1704.
Pilkington, 1776.
Barraclough, 1904.
Tindal, 1911.
Lake (*Crossley*), 2294.
Eastwood & Ainsworth, 2502.
Robinson, 2655.
Eyo, Bros., & Emsley, 3066.
Ermen & Ermen, 3154.
Bamber, 3305.
Lake (*Jobbins*), 3393.
Robertson, 3445.
Crawford & Crawford, 3694.
Newton (*Greene*), 3899.
Worrall, 3969.
Baerlein, 4014.
Johnson (*Freson, sen.*), 4027.
Bönten, 4065.
Lacassaigne, 4104.
Mills (*Fanchamps-Nicolaï*), 4270.

**Fire-alarms:**
Blake, 342.
Lake (*Johnson*), 371.
Newton (*Grechi*), 1172.
Blake, 1429.
Taylor & Newall, 1974.
Browne (*O'Lawlor*), 2327.
Moseley, 2969.
Symington, 3482.

**Fire-arms, guns and ordnance; gun carriages:**
Stroudley & Drummond, 6.
Needham, 31.
Macaulay, 92.
Scott & Matthews, 138.
Johnson (*Stuart & Vandermeersch*), 155.
Newton (*Broughton*), 256.
Gibbs & Pitt, 284.
Marval (*Berdan*), 398.
Marval (*Berdan*), 413.
Miller, 571.
Gercke, 707.
Maleham & Mirfin, 940.
Hollis, 953.
Henkel (*Dresse, Laloux & Co.*), 1060.
Scott, 1268.
Bonneville (*Biennais*), 1348.
Browne (*Basset*), 1362.
Deeley & Edge, jun., 1422.
Haggett, 1461.
Remington (*Remington & Sons*) 1465.
Hughes (*Rodier & Bates*), 1467.
Barlow (*Taylor*), 1523.

**Fire-arms, &c.—*cont.***
Mills (*Taylor*), 1549.
Hill, 1563.
Henry, 1582.
Henry, 1716.
Johnson (*Palmcrantz, Winborg & Unge*), 1739.
Crowley, 1826.
Adams, 1827.
Samain, 1944.
Grey & Harris, 2119.
Henry, 2158.
Powell, 2193.
Evans, 2261.
Lake (*Brownell*), 2302.
Apted, 2328.
Brown, 2346.
Gye, 2440.
Mills (*Taylor*), 2811.
Harston, 2969.
Greener, 3084.
Haseltine (*Providence Tool Co.*), 3228.
Byron (*Arnold*), 3247.
Byron (*Arnold*), 3365.
Roberts, 3552.
Fenby, 3590.
Little, 3635.
Scott, 3756.
Bassée, 3837.
Stiff, 3846.
Count de Gendre, 4215.

**Fire-arms, guns, &c. (charging, discharging, raising and working):**
Bessemer, 1076.
Rendel, 1149.
Rendel, 1425.
Mills (*Taylor*), 1549.
Croudace, 1679.
Noble, 1729.
Johnson (*Palmcrantz, Winborg & Unge*), 1739.
Taylor, 2062.
Baxter (*Folkard*), 2124.
Evans, 2261.
Cunningham, 2379.
Clark & Standfield, 2498.
Croudace, 2634.
Scott & Bruno, 3079.
Holman, 3699.
Bassée, 3837.
Rendel, 3882.

**Fire-bricks.** *See* "Bricks."

**Fire-buckets.** *See* "Pails."

**Fire-engines; extinguishing fire:**
Dennis, 301.
Dick, 362.
Lake (*Johnson*), 371.
Fletcher, 457.
Barff (*Kidd*), 520.
Humber & Haworth, 602.
Barlow & Walsh, 713.
Newton (*Grechi*), 1172.
Smith, 1591.
Platt, 1658.
Potel, 1752.
Whittaker, 1798.
Taylor & Newall, 1974.
Haseltine (*Stanton*), 2217.
Turner (*Righter*), 3043.
Thompson, 3188.
Wirth (*Beins*), 3194.
Thompson, 3221.
Haseltine (*Wyss & Studer*), 3487.
Messenger, 4001.
Turner, 4068.
Skinner, 4293.

**Fire-escapes:**
Newton (*Uda & Uda*), 553.
Smith, 1591.
Mewburn (*Gilquin & De Lacauve*), 3339.
Hicks, 3907.
Johnson, 3927.
Hendrickx & Kunstaedter, 4198.
Skinner, 4293.

**Fire-guards:**
Rowat, 1661.

**Fire-lighters.** *See* "Fuel."

**Fire-places and stoves:**
Garon, 62.
Anyon, 69.
Whitwell, 86.
Kininmonth, 102.
Lake (*Myers*), 127.
Quelch, 141.
Salmon, 147.
Carrington & Platt, 156.
Osborne & Palmer, 198.
Feather, 265.
Silber, 334.
Baker, 421.
Knevett, 438.
Bamber, 439.
Knaggs, 488.
Myers, 512.
Dennison, 530.
Ermen, 533.
Moorhouse, 574.
Lewis, 575.
Verrier, 581.
Owen & Hill, 583.
Halmshaw, 586.
Starkie, 593.
Rickard & Foster, 616.
Lightowler & Best, 617.
Topham, 643.
Caton, 646.
Steer, 660.
Collier, 663.
Corbitt, 677.
Hughes (*Grimm & Corvin*), 700.
Robertson, 708.
Shepherd, 711.
Hart, 741.
Maclachlan, 751.
Barraclough, 756.
Fawcett, 763.
Lake, 787.
Chappell, 796.
Boes, 808.
England & England, 812.
Count d'Epineuil, 829.
Gratrix, 853.
Jobson, Messrs., 836.
Lawton, 859.
Woodcock, 864.
Jones, 891.
Lang, 892.
Radcliffe, 895.
Oglesby & Jackson, 897.
Wood, 901.
Midgley, 949.
Dunn, jun., 962.
Barling, 976.
Haley, 978.
Thornton, 989.
Cooper, 991.
Woods & De Malortie, 1006.
Bartley, 1009.
Wolstencroft, 1020.
Taylor, 1037.
Moorwood, 1062.
Brampton, 1104.
Landau, 1131.
Cockey & Cockey, 1144.
Sellers & Richardson, 1155.
Newton & Dawson, 1176.
Goldsbrough, 1181.
Singer, 1183.
Redmayne, 1185.
Steel & Garland, 1192.
Spartali, 1206.
Hill, 1207.
Watson, 1217.
Crawshaw, 1239.
Barton, 1282.
Whitwell 1288.
Weigelin, 1338.
Clough, 1360.
Booth, 1373.
Foster & Foster, 1375.
Denley, 1381.
Rhodes, Rhodes & Frankland, 1436.
Torr & Johnstone, 1452.
Haggett, 1461.
Lloyd, 1480.
Webster, 1524.
Onion & Onion, 1536.
Barraclough, 1566.
Skelton & Mobberley, 1647.
Kendall & Kendall, 1757.
Williams, 1773.

**Fire-places and stoves—*cont.***
Kirk, 1782.
Hewett, 1793.
Newton (*Truesdell*), 1875.
Watson, 1893.
Smith (*Dove*), 1956.
Ray (*Heilmann*), 1960.
Milner, 1997.
Yewdall, 2065.
Trattles, 2181.
Salmon, 2419.
Tabor, 2437.
Johnson (*Davidson*), 2488.
Clark, 2489.
Liotard, jun., 2491.
Wirth (*Eichwede*), 2660.
Dean, 2731.
Musgrave & Shillington, 2749.
Summers, 2832.
Barraclough, 2857.
Hattersley, Messrs., & Ashley. 286[illegible]
Dobbie & Forbes, 2969.
Edwards, 2974.
Walker, 3017.
Scott, 3067.
Day & Walker, 3089.
Crane, 3094.
Bligh, 3193.
Ritchie, 3227.
Hunter, 3279.
Silber & Farquhar, 3291.
Napier, 3357.
Myers, 3368.
Jaques, 3370.
Hyatt, 3380.
Dyer, 3400.
Isherwood. 3413.
Matterson, 3469.
Finch, Messrs., 3480.
Wadsworth, 3491.
Bentley & Mullard, 3509.
Banks, 3539.
Rydill, 3567.
Peacock & Peacock, 3641.
Pearson, 3667.
Hyatt, 3684.
Hawkins, 3690.
Graham, 3734.
Warren, 3755.
Hyatt, 3788.
Crestadoro, 3798.
Chipperfield, 3804.
Lutwyche, 3810.
Thompson, 3849.
Hawken, 3889.
Fisken, 3900.
Edwards, 3905.
Shorland, 3909.
Slagg, 3911.
Brown, 3915.
Lloyd, 3925.
Kenyon, 3928.
Russell, 3941.
Whittle, 3963.
Redish, 4005.
Moore, 4019.
Mc Sherry & Nisbet, 4035.
Cockey & Cockey, 4038.
Barnes & Chalk, 4069.
Thomasson, 4073.
Brady, 4077.
Verity & Verity, 4096.
Henderson, 4111.
Akester, 4172.
Strode, Mackenzie & Williams (*Haskins*), 4192.
Bonneville (*Grandjean*), 4201.
Jacquet, 4229.
Jacquet, 4230.
Alleyn, 4256.

**Fire-proofing; rendering uninflammable:**
Lyttle, 52.
Hunt, 142.
Lake (*Warner*), 225.
Lake (*Warner*), 226.
Halfpenny, 262.
Milburn, 463.
Robbins, 2116.
Macomber, 2475.
Clark (*Pavy*), 2746.
Hyatt, 2788.
Neville, 2918.
Jones, 3057.

**Fireproofing, &c.—*cont.***
Whichcord, 3040.
Wilkinson, 3083.
Hyatt, 3256.
Hyatt, 3380.
Hyatt, 3381.
Westwood, jun., 3560.
Hyatt, 3658.
Hyatt, 3684.
Hornblower, 3714.
Weatherby, 3975.
Holland, 4216.

**Fire-screens.** *See* "Screens."

**Fire-works:**
Bonneville (*Biennait*), 1348.
Mackie & Faure, 1830.

**Fish gill screw propellers.** *See* "Propelling ships."

**Fish globes:**
Haggett, 1461.

**Fish guano.** *See* "Manure."

**Fishing; fishing nets and reels:**
Leach, 358.
Heaton, 388.
Gilbee (*Procopé*), 564.
Leach, 1281.
Rae, 1802.
Ducomet (*Bonamy*), 2377.
Lely, 3072.
Payne & Ping, 3134.
Smith, Stephenson, Vere & Capes, 4032.

**Flags.** *See* "Road making."

**Flask.** *See* "Bottles."

**Flat irons.** *See* "Ironing."

**Flax spinning.** *See* "Spinning, twisting."

**Fleshing machines.** *See* "Leather."

**Floating baths.** *See* "Baths."

**Floating breakwaters.** *See* "Breakwaters."

**Floating docks.** *See* "Docks."

**Flock cutting.** *See* "Cutting flock."

**Floor-cloth:**
Rollason, 1610.
Clark (*Townsend*), 2190.
Rowan, 2507.
Neville, 2918.
Mackay, 3129.
Hyatt, 3256.

**Floors:**
Whitburn, 48.
Lyttle, 52.
Hunt, 142.
Gardner, 633.
Grigg, 786.
Gray (*Sebille*), 1054.
Haggett, 1461.
Breeson, 1940.
Bonneville (*Maitre*), 2010.
Western, 2089.
Robbins, 2116.
Hide, 2308.
Mewburn (*Hatzfeld*), 2411.
Stone, 2915.
Whichcord, 3040.
Wood, 3255.
Hyatt, 3256.
Bennett, 3345.
Hyatt, 3380.
Hyatt, 3381.
Westwood, jun., 3560.
Hyatt, 3658.
Hyatt, 3684.
Hornblower, 3714.
Hyatt, 3788.
Oppenheimer, 3971.

**Flour.** *See* "Grinding corn."

**Flower pots, boxes, covers and stands:**
Spear, 2277.
Calver, 2300.
Cunliffe, 2802.
Hyatt, 3380.
Rhodes, 3517.

**Flowers, wreaths and sprays:**
James, 3359.

**Flues and chimneys for furnaces, brick-kilns, salt-pans, &c.**
Stroudley & Drummond, 6.
Imray (*Quimbel*), 309.
Erskine & Denby, 312.
Bowden, 399.
Derham (*Morand*), 411.
Hunt (*Colfs-Heyne*), 425.
Stone, 496.
Smith, 759.
Wilson, 875.
Stanley, 889.
Jones, 891.
Head, 923.
Robey, Banks & Forester (*De Bettignies, Bros.*), 970.
Shaw & Hunter, 1145.
Davies, 1160.
Clark, 1216.
Crosland, 1249.
Jobson, 1258.
Brakell, 1286.
Ecroyd & Wass, 1318.
Day & Turner, 1328.
Black, 1368.
Nicklin & Frost, 1396.
Rhodes, Rhodes & Frankland, 1436.
Barrow & Barrow, 1548.
Blondel & Bruneau, 1553.
Gooder, 1674.
Williams, 1773.
Healey, 1788.
Howatson & Williams, 1812.
Ray (*Heilmann*), 1960.
Horner & Dobson, 2037.
Hughes (*Fairbanks*), 2045.
Marley & Thompson, 2065.
Nimmo, 2162.
Lee, jun., 2370.
Salmon, 2419.
Harwood, Harwood, Scholes & Seymour, 2452.
Kesterton, 2497.
Hathaway, 2521.
Tongue (*Merrill*), 2558.
Crosland, 2614.
Spartali, 2712.
Dean, 2731.
Clark (*Pavy*), 2746.
Shanks & Thyne, 2869.
Hunt, 2944.
Dobbie & Forbes, 2959.
Surmon, 3327.
Pickwell, 3364.
Browne (*Foundries & Forges Co.*), 3376.
Bustard, 3533.
Sanderson, Messrs., 3546.
Pettitt, 3754.
Harley, 3755.
Twibill, 3791.
Thompson, 3849.
Read, 4016.
Hutchin, 4117.
Hopkinson & Hopkinson, 4236.
Lake (*Locke*), 4238.
Crosland, 4239.
Lord, 4269.
Power, 4271.

**Flues and chimneys for stoves and fireplaces; chimney cowls; preventing fall of soot in chimneys:**
Hunt, 142.
Roddis, 460.
Milburn, 483.
Dennison, 530.
Topham, 643.
Steer, 660.
Watts, 692.

**Flues, &c.—*cont.***
Hart, 741.
Lake, 787.
Chappell, 796.
Boes, 808.
Lawton, 859.
Haley, 978.
Thornton, 989.
Cooper, 991.
Wolstencroft, 1020.
Newton & Dawson, 1176.
Barton, 1282.
Whitwell, 1288.
Clough, 1360.
Booth, 1373.
Foster & Foster, 1375.
Rhodes, Rhodes & Frankland, 1436.
Lloyd, 1480.
Onion & Onion, 1536.
Kirk, 1782.
Yewdall, 2065.
Dean, 2731.
Musgrave & Shillington, 2749.
Scott, 3087.
Crane, 3094.
Ellis, 3311.
Clough, 3460.
Banks, 3539.
Rydill, 3567.
Hyatt, 3684.
Hawkins, 3690.
Warren, 3765.
Lutwyche, 3810.
Thompson, 3849.
Whittle, 3983.
Henderson, 4111.

**Flyers.** *See* "Spindles."

**Fog signals.** *See* "Signals."

**Folding and pleating paper:**
Cumming, 267.
Patrick & Tracy, 1337.
Haseltine (*Howlett & Onderdonk*), 1622.
Glembowiecki, 1785.
Gray, 2084.
Cumming, 2538.
Goodall, 2741.
Harris, 2804.
Robinson (*Howlett & Onderdonk*), 2973.
Newton (*Claude*), 3177.
Wilson, 3237.
Lynch, 3631.
Morgan-Brown (*Crowell*), 3677.

**Folding desks.** *See* "Furniture (tables)."

**Folding fabrics.** *See* "Finishing."

**Food for cattle:**
Tester, 299.
Bentall, 318.
Mitchell, 718.
Bennett (*Collett*), 825.
Suckling, 918.
Clark, 1339.
Maude, 1909.
Wise (*Lefèbvre*), 1928.
Simpson, 2025.
Mills (*Lamb*), 2126.
Follows & Bate, 2528.
Richmond, 2551.
Ayre, 3409.

**Food for man (preserving and preparing).** *See* "Preserving food."

**Foot warmers.** *See* "Heaters."

**Footpaths.** *See* "Roadmaking."

**Forcing air, gas, water, &c.:**
Robertson, 248.
Dennis, 301.
Jones, 372.
Pettifer, 395.
Robertson, 448.
Fletcher, 457.
Barff (*Kidd*), 520.
Wise (*Juengling*), 807.
Wright, 823.

Forcing air, &c.—*cont.*
Smith, 906.
Miller, 925.
Williams, 1122.
McKay & Macgeorge, 1365.
Ashcroft, 1758.
Brotherhood, 2003.
Cohrs, 2630.
Warren, 2781.
Maitland (*Hoffman*), 2834.
Beale, 3139.
Lake (*Baxter*), 3343.
Darlington & Scott, 3636.
Holman, 3699.
Turner, 4068.
Browne, 4279.

Forcing pits. *See* "Horticulture."

Foreshores. *See* "Breakwaters."

Forges; field forges:
Gedge (*Michelet*), 403.
Körting, 626.
Mitchell, 1203.
McKay & Macgeorge, 1365.

Forging metals. *See* "Metals (forging)."

Forks (agricultural):
Hodson, 93.
Barker, 2885.
Parkes & Parkes, 3691.
Pearson & Grinold, 3966.

Forks (cleaning). *See* "Knife boards."

Forms. *See* "Furniture (chairs)."

Fortifications. *See* "Batteries."

Foundation plates:
Hansen, 1810.

Fountains; drinking fountains:
Shanks, 199.
Dennis, 301.
Humber & Haworth, 662.
Haggett, 1461.
Robinson, 2713.
Perrett, 4249.

Fraud (prevention of):
Wier, 182.
Smith, 352.
Jaques, 815.
Sedgwick & Lake, 1132.
Anderson, 1200.
Caldbeck, 1210.
Smythe, 1866.
Black, 1876.
Stanfield, 1906.
Durham & Hupton, 1951.
Phillips, 2069.
Haas, jun., 2231.
Betts, 2240.
Hosking, 2248.
Pereira, 2333.
Dougall, 2369.
Robinson, 2713.
Caldbeck, 2715.
Clark (*Pavy*), 2746.
Haddan (*Dangoise*), 2900.
Macphail, 2931.
Bezer, 3160.
Starr, 3204.
Hill, 3231.
Brownjohn, 3423.
Parlour, 3476.
Starr, 3563.

Freezing-machines. *See* "Refrigerating."

Frillings. *See* "Trimmings."

Fringe (twisting on fabrics). *See* "Trimmings."

Fruit (preserving and drying):
Clark (*Howe*), 1428.
Lake (*Jones & Cooley*), 2220.
Lake (*Locke*), 2557.
Coleman, 2585.
Lake (*Moorey*), 4089.

Fuel (artificial, solid, compound):
Boynton & Holmes, 98.
King, 116.
Target, 168.
Johnson (*Pagliari*), 405.
Hays & Hays, 437.
Vincent, 565.
Patison, 569.
Chanel, 614.
Martin & Martin, 642.
Campbell, 656.
Lee, 695.
Fawcett, 705.
Stone, 723.
Cadett, 744.
Engledue, 745.
Henderson, 758.
Vassard, 819.
Forbes, 835.
Wadsworth, 841.
Harrison & Butler, 882.
Jones, 891.
Clark (*Challeton*), 945.
Hall, 971.
Clark (*Luxton*), 999.
Healy, 1069.
Maxted, 1115.
Thorp, 1173.
Kemp, 1177.
Forbes, 1191.
Gay, 1196.
Flower, 1201.
Forbes, 1204.
Spartali, 1206.
Clark, 1216.
Wolffram, 1245.
Walker, 1273.
Brakell, 1286.
Barker, 1321.
Smith, 1348.
Stenson & Cuff, 1466.
Colls, 1469.
Rovedino, 1490.
Harrison & Page, 1514.
Trumble, 1519.
Brown, 1528.
Jeyes & Jeyes, 1535.
Imray (*Luton & Lefèvre*), 1724.
Ashcroft, 1758.
Luke, 1771.
Forbes, 1816.
Forbes, 1832.
Wheeler, 1843.
Radeke, 1877.
Clark (*Bocquet & Bénard*), 1884.
Milburn & Jackson, 2004.
Hunt, 2237.
Simpson & Simpson, 2361.
Hunt, 2385.
Robey, 2534.
Stephens, 2581.
Girard, 2584.
Walker, 2682.
Newton (*Coutillard*), 2842.
Stone, 2878.
Hinton, 2714.
Barlow (*Noury & Masse*), 2771.
Kennelly, 2813.
Milburn & Jackson, 2855.
Henderson, 2860.
Penrose, 2868.
Kennelly, 3032.
Forbes, 3110.
Stone, 3143.
Forbes, 3205.
Johnson (*Rattger*), 3208.
Clark (*Martin*), 3353.
Stone, 3387.
Ayre, 3409.
Clark (*Loiseau*), 3419.
Walker, 3432.
Penrose, 3492.
Forbes, 3530.
Knight, 3552.
Lake (*Moro & Moro*), 3597.
Mitchell, 3664.
Bass, 3718.
Forbes, 3783.

Fuel (artificial, &c.)—*cont.*
Clark, 3812.
Lyttle, 3826.
Palmer & Dixon, 3868.
Leigh, 3874.
Page, 4020.
Walker, 4042.
Lyttle, 4131.
Simpson & Simpson, 4184.
Radeke, 4217.
Livingstone, 4218.
Bodmer, 4284.
Clark (*Jenty*), 4294.

Fuel (firelighters and faggots):
Weekes & Barnard, 289.
Clark (*Gracwitz*), 768.
Rovedino, 1199.
Trumble, 1519.
Trattles, 2181.
Noad, 2921.
Phillips, 2998.
Kennelly, 3032.
Haycraft, 4200.

Fuel (liquid and gaseous):
Harrison, 1.
Salmon, 147.
Stevens, 216.
Broel, 385.
Shaw, 455.
Lafargue, 458.
Barff (*Kidd*), 520.
Emmens, 576.
Ramsden, 873.
Mickle, 921.
Robey & Chantrell, 957.
Gardner, 963.
Gardner, 965.
Harrison, 1072.
Skoines, 1086.
Moody, 1123.
Clark (*Badt*), 1193.
Hey & Sugden, 1278.
Edmunds, jun., Wood & Wright, 1355.
Torr & Johnstone, 1462.
Smith, 1478.
Colls, 1533.
Wright, 1597.
Imray (*Loiseau*), 1623.
Imray (*Luton & Lefèvre*), 1724.
Gadd, 1763.
Lutschaunig & Ricketts, 1895.
Lamb, 1966.
Baggs, 2000.
Hinks & Holland, 2047.
Ditchfield, Watson & Childs, 2093.
McAvoy, 2152.
Louttit, 2174.
Hunter (*Berry, Randolph & Eichbaum*), 2177.
Ross, 2214.
Salmon, 2419.
Knab, 2462.
Hedley, 2543.
Barber & Ingham (*Burns*), 2711.
Fyfe & Bowers, 2873.
Yarrow (*Steers*), 2901.
Holland, 2971.
Johnson (*Sellers & Sellers*), 2982.
Kennelly, 3032.
Blake (*Cutting*), 3243.
Gardner (*Franz*), 3264.
Clark (*Martin*), 3353.
Galloway, 3369.
Bray, 3490.
Harrison, 3526.
Hart, 3638.
Leigh, 3678.
Benson (*Morris, Robinson & Mackenzie*), 3697.
Ramsden, 3796.
Thompson, 3849.
Parker & Wade, 3868.
Ditchfield, Watson & Childs, 4096.
Collet & De Lavillasse, 4133.
Hart, 4159.
Forbes, 4160.
Haas (*Folliot*), 4170.
Aitken, 4227.
Clark (*Jenty*), 4294.

Fuel (saving or economising):
Boes, 34.
Anyon, 69.

**Fuel (saving, &c.)—*cont.***

Baynes, 78.
Stell, 111.
Smith (*De Chodzko*), 124.
Carrington & Platt, 156.
Feather, 265.
Erskine & Denby, 312.
Smith (*Du Motay*), 328.
Rydill, 329.
Olley & Jackson, 338.
Joslin, 341.
Richardson & Watson, 370.
Jones, 372.
Rydill, 376.
Bowden, 399.
Andrews, 404.
Derham (*Morand*), 411.
Hunt (*Colfs-Heyne*), 425.
Knevett, 438.
Bamber, 439.
Knagge, 488.
Stone, 496.
Cowan, 500.
Myers, 512.
Dennison, 530.
Ermen, 533.
Greenwood, Saville & Morton, 568.
Moorhouse, 574.
Lewis, 575.
Owen & Hill, 583.
Halmshaw, 586.
Henderson (*Demailly*), 591.
Starkie, 593.
Rickard & Foster, 616.
Lightowler & Best, 617.
Bell & Goodman, 641.
Topham, 643.
Caton, 646.
Stanley, 654.
Steer, 660.
Collier, 663.
Pilkington, 669.
Corbitt, 677.
Haseltine (*McCarty, Olds & Mason*), 681.
Rydill, 691.
Tommasi, 696.
Hughes (*Grimm & Corvin*), 700.
Shepherd, 711.
Lancaster and Swindells, 714.
Spencer & Smith, 715.
Lake (*Knowles & Saunders*), 719.
Jukes, 736.
Maclachlan, 751.
Barraclough, 756.
Smith, 759.
Fawcett, 763.
Spence, 774.
Lake, 787.
Swan, 789.
Grimston, 792.
Taylor, 794.
Chappell, 796.
Tiffany, 798.
Mickle, 803.
Boes, 808.
England & England, 812.
Count d'Epineuil, 829.
Gratrix, 833.
Jobson, Messrs., 836.
Jukes, 845.
Lawton, 859.
Stanley, 889.
Lang, 892.
Jones, 894.
Radcliffe, 895.
Oglesby & Jackson, 897.
Mickle, 921.
Midgley, 949.
Dunn, jun., 962.
Wright, 964.
Adams & Jenkins, 968.
Robey, Banks & Forester (*De Bettignies, Bros.*), 970.
Barling, 976.
Haley, 978.
Gardner, 985.
Cook, 986.
Thornton, 989.
Woods & De Malortie, 1006.
Bartley, 1009.
Wolstencroft, 1020.
Gillon & Dujardin, 1025.
Gigodot, 1028.
Taylor, 1037.
Moorwood, 1062.

**Fuel (saving, &c.)—*cont.***

Johnson (*Riot & Roux*), 1069.
Brampton, 1104.
Nield, 1109.
Williams, 1122.
Cockey & Cockey, 1144.
Shaw & Hunter, 1145.
Heyworth & Wilkinson, 1147.
Newton & Dawson, 1176.
Goldsbrough, 1181.
Redmayne, 1185.
Steel & Garland, 1192.
Mitchell, 1203.
Hill, 1207.
Crawshaw, 1239.
Bonner, 1265.
Willis, 1269.
Barton, 1282.
Brown & Biddell, 1301.
Arnall, 1306.
Davey 1315.
Ecroyd & Wass, 1318.
Smyth, 1320.
Henderson, 1327.
Day & Turner, 1328.
Clough, 1360.
Foster & Foster, 1375.
Rhodes, Rhodes & Frankland, 1436.
Torr & Johnstone, 1452.
Thomas & Nightscales, 1454.
Haggett, 1461.
Smith, 1478.
Pohl, 1503.
Griffin (*Griffin*), 1507.
Nixon & Quin, 1522.
Webster, 1524.
Oldham, jun., 1531.
Bradbury, 1537.
Barrow & Barrow, 1548.
Blondel & Bruneau, 1553.
Henderson (*Demailly & Bruneaux*), 1644.
Skelton & Mobberley, 1647.
Mickle, 1656.
Gooder, 1674.
Newbold, 1677.
Minton, 1709.
Botterill, Botterill, jun., & Wolstenholm, 1744.
Kendall & Kendall, 1757.
Williams, 1773.
Kirk, 1782.
Hewett, 1793.
Howatson & Williams, 1812.
Scott, 1833.
Heyworth & Wilkinson, 1890.
Watson, 1893.
Schallehn (*Stamer*), 1902.
Curtis (*Mills*), 1924.
Werdermann, 1934.
Stanley, 1948.
Smith (*Dewe*), 1956.
Ray (*Heilmann*), 1960.
Lamb, 1966.
Milner, 1997.
Miller, 2031.
Horner & Dobson, 2037.
Bopp-Du-Pont, 2076.
Wise (*Riot & Roux*), 2135.
Nimmo, 2162.
Schwarz, 2218.
Rowan, 2233.
Mennons (*De Teleschaff*), 2310.
Wirth (*Reinemer & Stemler*), 2320.
Hartley, 2329.
Greey, 2338.
Lee, jun., 2370.
Gedge (*Préville*), 2396.
Tabor, 2437.
Harwood, Harwood, Scholes & Seymour, 2452.
Clark, 2489.
Garey & Turner, 2493.
Hathaway, 2521.
Horrocks, 2578.
Sibert, 2612.
Wetherill, 2682.
Barber & Ingham (*Burns*), 2711.
Spartali, 2712.
Grafton, 2725.
Dean, 2731.
Housley, 2814.
Summers, 2823.
Crowther & Morgan, 2839.
Barraclough, 2857.
Hatterslay, Messrs., & Ashley, 2862.

**Fuel (saving, &c.)—*cont.***

Shanks & Thyne, 2869.
Arnold, 2887.
Bourget, 2935.
Boyd (*Farinaux, Fichaux, Girol & Sartoris*), 2951.
Newton (*Ray, Jagger & Miner*), 2960.
Marsden, 3018.
Owen, 3034.
Gardner (*Gigodot*), 3053.
Crane, 3094.
Stanley, 3154.
Bligh, 3193.
Wirth (*Beins*), 3194.
Ritchie, 3227.
Voisin, 3252.
Hunter, 3279.
Ellis, 3311.
Massey & Hill, 3313.
Harrington, 3341.
Napier, 3357.
Pickwell, 3364.
Galloway, 3369.
Jaques, 3370.
Jones & Jones, 3378.
Baird, 3391.
Dyer, 3400.
Trossin, 3401.
Hamilton, 3402.
Price, 3462.
Stevenson, 3474.
Finch, Messrs., 3480.
Wadsworth, 3491.
Scott, 3505.
Bentley & Mullard, 3509.
Stevenson, 3514.
Boyman, 3515.
Banks, 3539.
Danks, 3566.
Rydill, 3567.
Mills (*Burgess*), 3589.
De Lungo (*Tardani*), 3633.
Hart, 3638.
Peacock & Peacock, 3641.
Pearson, 3667.
Hamer, 3682.
Crampton, 3687.
Hawkins, 3690.
Sinclair, 3693.
Johnson (*Maseron*), 3698.
Weston, 3706.
Rydill, 3732.
Graham, 3734.
Johnson (*Richards, Wait, Shapley & Jones*), 3745.
Britten, 3750.
Pettitt, 3754.
Harley, 3755.
Warren, 3765.
Twibill, 3791.
Nimmo, 3792.
Ramsden, 3796.
Crestadoro, 3798.
Tasker, 3800.
Chipperfield, 3804.
Lutwyche, 3810.
Parker & Wade, 3863.
Hawken, 3889.
Hutchison, 3894.
Fisken, 3900.
Pinney, 3903.
Shorland, 3909.
Slagg, 3911.
Clarke, Clarke & Harrold, 3924.
Kenyon, 3928.
Kruger & Colani, 3949.
Lake (*Popping*), 3978.
Whittle, 3983.
Redish, 4005.
Moore, 4019.
Mc Sherry & Nisbet, 4035.
Davies & Dawson, 4064.
Barnes & Chalk, 4069.
Thomasson, 4073.
Brady, 4077.
Spartali, 4091.
Hutchiu, 4117.
Heyworth & Wilkinson, 4125.
Edwards, 4133.
Parker, 4138.
Richardson, 4150.
Akester, 4172.
Holland, 4216.
Hopkinson & Hopkinson, 4236.
Lake (*Locke*), 4238.

**Fuel (saving, &c.)—*cont.***
Crosland, 4239.
Clark (*Douglass*), 4247.
Alleyn, 4256.
Cadett, 4263.
Power, 4271.

**Fuel (supplying to furnaces).** *See* "Furnaces."

**Fulling and felting; felted fabrics:**
Wilson (*Bickemeyer*), 76.
Wilson (*Bickemeyer*), 487.
Minshall & Dunkerley, 603.
Gibson, Taylor, Bardsley & Fletcher, 866.
Morris, 1344.
Jenkins, 2197.
Roberts, 2286.
Lake (*Crossley*), 2293.
Lees & Ward, 2408.
Openshaw, 2695.
Newton (*Waring*), 2743.
Bird, Worth, Fogg & Oldham, 2886.
Hyatt, 3256.
Worsley, Brelsford & Ashton, 3557.
Hunt (*Brassat*), 3669.
Hyatt, 3788.
Marlin, 3825.
Newton (*Greene*), 3899.
Sheldon, 4018.

**Funnels:**
Nangle, 495.

**Furnaces and cupolas used in metallurgy:**
Newton (*Goodrich, Hillman & Goodrich*), 90.
Crispin, 123.
Riley & Henley, 254.
Bayley, 292.
Richardson & Watson, 370.
Gedge (*Michelet*), 403.
Shaw, 455.
Willans, 547.
Lake (*Büttgenbach*), 560.
Rochussen (*Daelen*), 562.
Stanley, 628.
Bell & Goodman, 641.
Deakin, 672.
Lancaster & Swindells, 714.
Johnson, 730.
Jukes, 736.
Mickle, 803.
Ramsden, 873.
Stanley, 889.
Strickland, 984.
Barclay, 990.
Newton (*Lowman*), 1153.
Davies, 1160.
Brakell, 1286.
Ecroyd & Wass, 1318.
Smyth, 1320.
Knowles, 1374.
Smith (*Martin*), 1397.
Tooth & Tooth, jun., 1414.
Gerhard & Caddick, 1477.
Smith, 1478.
Browne (*Foundries & Forges Co.*), 1574.
Imray (*Loiseau*), 1623.
Henderson (*Edgcome*), 1645.
Skelton & Mobberley, 1647.
Howatson, 1742.
Williams, 1773.
Healey, 1788.
Howatson & Williams, 1812.
Scott, 1833.
Lutschaunig & Ricketts, 1895.
Ray (*Heilmann*), 1960.
Bodmer & Bodmer, 2026.
Haseltine (*Harding*), 2064.
Nimmo, 2162.
Browne (*Foundries & Forges Co.*), 2335.
Gaillon, 2414.
Salmon, 2419.
Vaughan (*Larmann & Aldendorff*), 2451.
Coley, Robson & Price, 2595.
Barber & Ingham (*Burns*), 2711.
Green, 2762.

**Furnaces and cupolas—*cont.***
Johnson (*Pernot*), 2819.
Munts & Sharp, 2843.
Charpentier, 2941.
Boyd (*Farinaux, Fichaux, Girol & Sartoris*), 2951.
Newton (*Miner*), 2953.
Newton (*Ray, Jagger & Miner*), 2960.
Johnson (*Sellers & Sellers*), 2962.
Gardner (*Gigodot*), 3053.
Hyde & Hyde, 3236.
Voisin, 3252.
Blacker, 3269.
Richardson, 3283.
Sherman, 3323.
Napier, 3357.
Browne (*Foundries & Forges Co.*), 3376.
Jones & Jones, 3378.
Price, 3462.
Danks, 3566.
Danks, 3577.
Mills (*Burgess*), 3589.
Casson, 3626.
Hart, 3638.
Deighton, 3672.
Heys, 3674.
Leigh, 3678.
Crampton, 3687.
Willans, 3716.
Johnson (*Baker*), 3744.
Pettitt, 3754.
Wall & Penn, 3776.
Ramsden, 3796.
Wirth (*André*), 3843.
Thompson, 3849.
Parker & Wade, 3868.
Scott & Heys, 3912.
Williams, 3929.
Holland, 3961.
Siemens, 4075.
Hart, 4159.
Holland, 4216.
Alleyn, 4256.
Johnson (*Pernot*), 4291.

**Furnaces for steam-boilers:**
Baynes, 78.
Stell, 111.
Smith (*De Chodzko*), 124.
Asbury, 189.
Salmon, 147.
Stevens, 216.
Erskine & Denby, 312.
Hart, 315.
Rydill, 329.
Silber, 334.
Joslin, 341.
Jones, 372.
Gall, 392.
Hedges, 436.
Shaw, 455.
Barff (*Kidd*), 520.
Emmens, 576.
Lake (*Proudfoot*), 634.
Lake (*Proudfoot*), 635.
Stanley, 654.
Haseltine (*McCarty, Olds & Mason*), 681.
Rydill, 691.
Lancaster & Swindells, 714.
Spencer & Smith, 715.
Lake (*Knowles & Saunders*), 719.
Johnson, 730.
Green, 747.
Lake, 787.
Boes, 806.
Mayes, 838.
Jukes, 845.
Mickle, 921.
Head, 923.
Wright, 964.
Adams & Jenkins, 968.
Ruston, 979.
Gardner, 985.
Cook, 986.
Woods & De Malortie, 1006.
Gigodot, 1026.
Johnson (*Riot & Roux*), 1089.
Wise, jun., 1098.
Williams, 1122.
Shuttleworth, 1125.
Stratford, 1153.
Spartali, 1206.

**Furnaces for steam-boilers—*cont.***
Young, 1212.
Crosland, 1249.
Hey & Sugden, 1276.
Smith (*Mays*), 1316.
Ecroyd & Wass, 1318.
Smyth, 1320.
Day & Turner, 1328.
Todd, 1389.
Tooth & Tooth, jun., 1414.
Rhodes, Rhodes & Frankland, 1436.
Torr & Johnstone, 1452.
Haggett, 1461.
Lloyd, 1460.
Griffin (*Griffin*), 1507.
Oldham, jun., 1531.
Bradbury, 1537.
Blondel & Bruneau, 1553.
Gray, 1617.
Wigzell & Pollit, 1627.
Skelton & Mobberley, 1647.
Newbold, 1677.
Wirth (*Boschan*), 1692.
Imray (*Laton & Lafvre*), 1734.
Huntington, 1753.
Gadd, 1763.
Williams, 1773.
Rowland & Rowland, 1839.
Lovibond, 1844.
Schallehn (*Stamer*), 1902.
Stanley, 1946.
Smith (*Dewe*), 1956.
Ray (*Heilmann*), 1960.
Lamb, 1966.
Milner, 1997.
Horner & Dobson, 2037.
Ditchfield, Watson & Childs, 2066.
Schwarz, 2218.
Lloyd, 2265.
Cain, 2363.
Salmon, 2419.
Whight (*Rogerson*), 2433.
Garey & Turner, 2468.
Kesterton, 2497.
Hathaway, 2521.
Tongue (*Merrill*), 2558.
Horrocks, 2578.
Hurd & Simpson, 2594.
Rydill, 2624.
Carver, 2693.
Barber & Ingham (*Burns*), 2711.
Spartali, 2712.
Dean, 2731.
Knoblauch, 2753.
Smith, 2787.
Schacher & Feret, 2809.
Tysoe, 2856.
Yarrow (*Steers*), 2901.
Charpentier, 2941.
Boyd (*Farinaux, Fichaux, Girol & Sartoris*), 2951.
Walker, 3017.
Owen, 3034.
Gardner (*Gigodot*), 3053.
Stanley, 3154.
Mewburn (*Dowd & Dowd*), 3363.
Galloway, 3369.
Baird, 3391.
Pope, 3405.
Lange, 3571.
Bousfield (*Stevens*), 3575.
Leigh, 3678.
Crampton, 3687.
Benson (*Morris, Robinson & Mackenzie*), 3697.
Weston, 3706.
Rydill, 3732.
Johnson (*Richards, Weil, Shepley & Jones*), 3745.
Harley, 3755.
Moore, 3774.
Nimmo, 3792.
Ramsden, 3796.
Thompson, 3849.
Clarke, Clarke & Harrold, 3924.
Moore, 4019.
Spartali, 4090.
Spartali, 4091.
Ditchfield, Watson & Childs, 4095.
Richardson, 4150.
Lloyd, 4235.
Hopkinson & Hopkinson, 4236.
Crosland, 4239.
Clark (*Douglass*), 4247.
Alleyn, 4256.

**Furnaces (miscellaneous):**
Croll, 45.
Rydill, 83.
Target, 168.
Williams, 268.
Smith (*Du Motay*), 328.
Jones, 372.
Hunt (*Colfs-Heyne*), 425.
Stone, 496.
Körting, 626.
Pilkington, 669.
Lancaster & Swindells, 714.
Tiffany, 798.
Smith (*Mabille*), 804.
Wilson, 875
Stanley, 889.
Jones, 891.
Jones, 894.
Wood, 901.
Hughes (*Daudenart & Verbert*), 938.
Mills, 948.
Woods & De Malortic, 1006.
Skoines, 1066.
Williams, 1122.
Landau 1131.
Clark, 1216.
Ecroyd & Wass, 1318.
Smyth, 1320.
Torr & Johnstone, 1452.
Lloyd, 1480.
Pohl, 1503.
Griffin (*Griffin*), 1507.
Skelton & Mobberley, 1647.
Mickle, 1656.
Newbold, 1677.
Williams, 1773.
Rowland & Rowland, 1830.
Lovibond, 1844.
Lamb, 1956.
Milner, 1997.
Bodmer & Bodmer, 2026.
Cain, 2363.
Robinson, 2404.
Meldrum, 2407.
Salmon, 2419.
Whight (*Rogerson*), 2433.
Lister, 2508.
Hathaway, 2521.
Horrocks, 2578.
Carver, 2693.
Barber & Ingham (*Burns*), 2711.
Lake (*Mühlig*), 2716.
Knoblauch, 2752.
Yarrow (*Steers*), 2901.
Walker, 3017.
Gardner (*Gigodot*), 3053.
Surmon, 3327.
Mewburn (*Dowd & Dowd*), 3363.
Isherwood, 3413.
Wirth (*Boschan*), 3454.
Stevenson, 3474.
Stevenson, 3514.
Nuttall, 3628.
Leigh, 3678.
Hamer, 3682.
Benson (*Morris, Robinson & Mackensie*), 3697.
Weston, 3706.
Rydill, 3732.
Moore, 3774.
Holland, 3961.
Redish, 4005.
Moore, 4019.
Collet & De Lavillasse, 4135.
Strode, Mackenzie & Williams (*Haskins*), 4192.
Holland, 4216.
Lloyd, 4235.
Crosland, 4239.
Alleyn, 4256.
Cadett, 4262.

**Furniture (bedsteads and bedstead bottoms):**
Haseltine (*Waller & Fowler*), 77.
Stocker, 702.
Lee, 1870.
Marrian, 1929.
Poole, 2478.
Samuel, 3627.
Clark (*Vanloo*), 3998.
Welch, 4185.

**Furniture casters.** *See* "Casters."

**Furniture (chairs, forms, seats and stools):**
Gibson (*Andrews*), 119.
Wells, 219.
Francis, 1028.
High, 1402.
Pells, 1495.
Chomel, 1705.
Lee, 1870.
Thomson (*Thomson*), 1931.
Clark (*Lichtenfelder*), 2620.
Nolan, 2648.
Tongue (*Du Chastaingt & Marville*), 2668.
Everickx, 3001.
Connon, 3050.
Wilkins, 3569.
Samuel, 3627.
Martin, 3642.
Malone, 3811.
Mc Farlane, 3844.
Clark (*Vanloo*), 3998.
Anderson, 3999.
Phillips, 4009.
Barge, 4049.

**Furniture (miscellaneous):**
Whitburn, 48.
Gardner, 633.
Hayward, 2050.
Robbins, 2116.
Livsey (*Hall*), 2625.
Poth & Simpson, 3431.
Turner, 3535.
D'Humy, 4000.

**Furniture (sofas and lounges):**
Newell, 503.
Chomel, 1705.
Samuel, 3627.
Clark (*Vanloo*), 3998.
Anderson, 3999.
Phillips, 4009.

**Furniture (tables and desks):**
Whittenbury & Whittenbury, jun., 21.
Gibson (*Andrews*), 119.
Wells, 219.
Haseltine (*Nichols*), 303.
Dunderdale & Holt, 531.
Rowbotham & Richardson, 684.
Drew, 929.
Francis, 1028.
Hammer, 1303.
High, 1402.
Gedge (*Coustie*), 1418.
Pells, 1495.
Chomel, 1705.
Bramley & Green, 1961.
Poole, 2478.
Sonnenschein, 2616.
Anthony, jun., 2697.
Leggett, 2906.
Lake (*Morrison*), 3012.
Connon, 3050.
Hyatt, 3380.
Poth & Simpson, 3431.
Martin, 3642.
Clark (*Vanloo*), 3998.

**Furs (preserving):**
Morris, 1344.

**Fusees; fusee boxes; cigar and tobacco lighters:**
Caton, 401.
Pilon, 637.
Browne (*Berthoud*), 2331.
Walker, 2632.
Hathaway, 3140.
Loomes, 3300.

**Fuses; electric fuses:**
McEvoy, 740.
Davey & Watson, 1267.
Blake, 1429.
McEvoy, 1586.
Brain, 2976.

## G.

**Gabions.** *See* "Fortifications."

**Gaiters.** *See* "Leggings."

**Galvanism.** *See* "Electricity."

**Galvanometers:**
Haseltine (*Smith*), 351.
Sprague, 1558.
Field, 2254.

**Gambols for hanging pigs.** *See* "Pigs."

**Games and exercises:**
Wells, 219.
Lancaster & De La Rue, 639.
Holroyd, 1562.
Phillips, 2069.
Hunt, 2709.
Perry (*Alexander*), 2906.
Kingston, 3000.
Lee, 3070.
Burroughes, 4074.

**Garden frames.** *See* "Horticulture."

**Garden rollers.** *See* "Horticulture."

**Garments for gentlemen's wear.** *See* "Wearing-apparel."

**Garters; stocking supporters:**
Pulvermacher, 1067.
Halladay, 2565.
Daniels, 2631.
Haseltine (*Ellis*), 4261.

**Gas (analysing):**
Orsat, 1853.

**Gas and other burners and regulators; gas governors; gas fittings; lighting gas:**
Peebles, 7.
Plessner, 180.
Gedge (*Gouselain*), 202.
Dennis, 301.
Girdwood, 314.
Silber, 334.
Sokolnicki, 336.
Broel, 385.
Platt, 389.
Dean & Lancaster, 442.
Robertson, 708.
Wakefield, 814.
Wood, 901.
Thornton, 989.
Merriman, 993.
Doty, 1047.
Tongue (*Kastner*), 1091.
Landau, 1131.
Silver, 1219.
Harper, 1251.
Silber, 1304.
Giles, 1366.
Harvie, 1403.
Watson, 1472.
Skelton, 1487.
Hus, 1587.
Wirth (*Korwan & Flürscheim*), 1611.
Haseltine (*Oldershausen*), 1697.
Clark (*Planté*), 1713.
Jamieson, 1715.
Smith, 1803.
Lake (*Kavanagh*), 1859.
Newton (*Truesdell*), 1875.
Spencer, 1894.
Lutschaunig & Ricketts, 1895.
Kidd, 1917.
Lamb, 1966.
Kidd (*Clough*), 2017.
Evans, 2142.
Cramp, 2260.
Campbell & Parker, 2352.

**Gas-burners, &c.—*cont.***
Silber, 2427.
Liotard, jun., 2491.
Tongue (*Merrill*), 2558.
Clark (*Seal & Brooks*), 2759.
Lake (*Whidden, Reed & Fletcher*), 2779.
Wilson, 2784.
Lake (*Pope*), 2812.
Green & Barrow, 2889.
Edwards, 2974.
Walker, 3017.
Mewburn (*Pintsch*), 3101.
Silver, 3180.
Ritchie, 3227.
Clark (*Crété*), 3240.
Silber & Farquhar, 3291.
Guthrie, 3303.
Bamber, 3305.
Belt, 3372.
Smith (*Storer*), 3459.
Gercke (*Neuber*), 3555
Soul (*Korwan & Flurscheim*), 3607.
Peacock & Peacock, 3641.
Hyatt, 3684.
Benson (*Morris, Robinson & Mackenzie*), 3697.
Fletcher, 3733.
Harris, 3886.
Edwards, 3905.
Messenger, 4001.
Dupont, 4060.
Jacquet, 4229.
Armitage & Taylor, 4254.

**Gas as applied in making musical sounds:**
Tongue (*Kastner*), 1091.

**Gas engines.** *See* "Air engines."

**Gas extinguishers:**
Merriman, 993.
Haseltine (*Oldershausen*), 1697.
Clark (*Seal & Brooks*), 2759.
Wilson, 2784.
Green & Barrow, 2889.
Armitage & Taylor, 4254.

**Gas (making and purifying); gasometers:**
Harrison, 1.
Foulis, 59.
Lake (*Krausse*), 80.
Sowerbutts, 100.
Clark (*Audouin & Pelouze*), 109.
Holman, 115.
Holman, 136.
Salmon, 147.
Scott, 154.
Scott, 183.
Williams, 205.
Stevens, 216.
Hawkins, 220.
Patterson, 274.
Imray, 325.
Broel, 385.
McDougall, 393.
Taylor, Buckley & Chadwick, 430.
Harrison, 435.
Maquay, 450.
Lafargue, 458.
Richards, 518.
Barff (*Kidd*), 520.
Vincent, 565.
Patison, 569.
Emmens, 576.
Jensen (*Erichsen & Maardt*), 602.
Körting, 626.
Chappell, 704.
Parlby, 768.
Tiffany, 798.
Mickle, 803.
Wise (*Juengling*), 807.
Wright, 823.
Harrison, 843.
Jukes, 845.
Skoines, 846.
Darwin, 896.
Clark (*Challeton*), 945.
Gardner, 963.
Gardner, 985.
Baggs, 1046.
Harrison, 1072.

**Gas making, &c.—*cont.***
Skoines, 1086.
Williams, 1122.
Moody, 1123.
Clark (*Badt*), 1193.
Thomas, 1244.
Harper, 1251.
West, 1255.
Rowland, 1287.
Edmunds, jun., Wood & Wright, 1355.
Cadett, 1412.
Tooth & Tooth, jun., 1414.
Colls, 1469.
Baggs, 1471.
Parlby, 1496.
West, 1504.
Lyon & Robinson, 1529.
Colls, 1533.
Brown, 1555.
Duffee, 1575.
Wright, 1597.
Alley, 1633.
Mickle, 1656.
Imray (*Luton & Lefèvre*), 1724.
Harrison, 1784.
Caffall, 1799.
Lake (*Kavanagh*), 1859.
Box, 1887.
Spencer, 1894.
Kidd, 1917.
Baggs, 2000.
Livesey, 2016.
Hinks & Holland, 2047.
Haseltine (*Harding*), 2064.
Ditchfield, Watson & Childs, 2096.
McAvoy, 2152.
Louttit, 2174.
Hunter (*Berry, Randolph & Eichbaum*), 2177.
Ross, 2214.
Graham, 2245.
Skoines, 2262.
Wotherspoon, 2337.
Grice, 2339.
Shepherd, 2356.
Wotherspoon & Foulis, 2391.
Robinson, 2404.
Salmon, 2419.
Somerville & Robinson, 2453.
Knab, 2482.
Hathaway, 2521.
Nicholson, 2524.
St. John, 2527.
Hedley, 2543.
Seegers, 2599.
Spice & Hartley, 2603.
Harcourt & Fison, 2685.
Barber & Ingham (*Burns*), 2711.
Freestone & Humphris, 2729.
Hughan, 2760.
Barlow (*Noury & Masse*), 2771.
Maitland (*Hoffman*), 2834.
Johnson (*Wainwright, Wiswell & Hurlbut*), 2840.
Fyfe & Bowers, 2873.
Yarrow (*Steers*), 2901.
Bois, fils, 2936.
Wilson, 2954.
Holland, 2971.
Dixon (*Cobley*), 2981.
Johnson (*Sellers & Sellers*), 2982.
Valon, 3005.
Kennelly, 3032.
Voigt, 3185.
West, 3224.
West, 3225.
Blake (*Cutting*), 3243.
Gardner (*Franz*), 3264.
Manwell, 3314.
Muir, 3318.
Muir, 3319.
Surmon, 3327.
Clark (*Martin*), 3353.
Wilkinson, 3450.
Seegers, 3441.
Haseltine (*Wyss & Studer*), 3487.
Bray, 3490.
Harrison, 3526.
Bower & Bower, 3528.
Rowley, 3588.
Darlington & Scott, 3636.
Benson (*Morris, Robinson & Mackenzie*), 3697.
Ramsden, 3796.
Hawkins, 3822.

**Gas making, &c.—*cont.***
Wirth (*André*), 3843.
Lake (*Fogarty*), 3846.
Thompson, 3849.
Parker & Wade, 3868.
Bell, jun. & Bell, 3916.
Siemens, 4075.
Ditchfield, Watson & Childs, [illegible].
Collet & De Lavillasse, 4135.
Hart, 4159.
Forbes, 4160.
Walker, 4163.
Harrison, 4165.
Haas (*Folliot*), 4170.
Spice, 4178.
Aitken, 4227.
Alleyn, 4256.
Clark (*Jenty*), 4294.

**Gas meters.** *See* "Meters."

**Gassing yarns:**
Hartley, 81.
Bamber, 3305.

**Gauges; water level indicators:**
Henry (*Dupuch*), 33.
Smith & Brierley, 699.
Fairchild (*Stiles*), 1060.
Lyon & Robinson, 1529.
Langley, 1616.
Hargreaves, 1675.
Wood & Clarke (*Harrison*), 1771.
Haseltine (*Stanton*), 2217.
Henderson (*Nicolas, Chanos & Co.*), 2259.
Newton (*Goodrich & Korublum*), 2977.
Everett, 3173.
Sudworth, 3229.
Benson (*Morris, Robinson & Mackenzie*), 3697.
Stuart, Jagger, Smith & Pilling, 3963.
Bernadac, 4067.
Firth & Senior, 4182.
Hopkinson & Hopkinson, 4236.

**Gauges or guide mechanism.** *See* "Propelling (machinery)."

**Gauging and verifying relative positions of rails of railways and tramways:**
Morgan-Brown (*Camozzi & Schlieser*), 1246.

**Gauze (wire).** *See* "Wire-working."

**Gaveling and binding grain.** *See* "Reaping."

**Gelatine and substitutes:**
Dale & Dale, 3191.
Smith (*Melville*), 3767.

**Gems or precious stones:**
Curtis (*Field*), 2389.
Clark (*Hermann*), 2963.
Heatherington, 3424.

**Generating force.** *See* "Motive-power."

**Generating steam.** *See* "Steam-boilers."

**Gigs or machines for raising cloth.** *See* "Finishing."

**Gilding and bronzing on glass, paper, &c.:**
Leeming, Ray & Lynde, 46.
Schwarzenbach, 208.
Capreell, 760.

**Gill boxes.** *See* "Spinning (carding)."

**Gimlet holders.** *See* "Tools."

Gins (cotton). *See* "Fibres (opening)."

Girders. *See* "Beams."

Glass and its applications:
Codd, 75.
Whipp & Mellor, 132.
Schwarzenbach, 208.
Redgrave & Wright, 223.
Platt, 399.
Richardson, 676.
Brasseur & Wogler, 720.
Smith, 755.
MacCunn, 801.
Brown (*Dodé*), 802.
Wood, 901.
Hughes (*Daudenart & Verbert*), 939.
Perrier, 1002.
Clark (*Nichols*), 1205.
Ecroyd & Wass, 1318.
Henderson, 1369.
Tooth & Tooth, jun., 1414.
Torr & Johnstone, 1452.
Haggett, 1461.
Skelton, 1487.
Minton, 1526.
Minton, 1709.
Robbins, 2116.
Cramp, 2260.
Whipp & Mellor, 2275.
Mc Kee, 2530.
Lake (*Mühlig*), 2716.
Hyatt, 2788.
Harrison, 2848.
Edwards, 2974.
Hughes (*Daudenart & Verbert*), 3014.
Greener, 3025.
Haseltine (*Whitney*), 3064.
Stone, 3076.
Stockman & Bennett, 3166.
Hyatt, 3256.
Hyatt, 3684.
Britten, 3750.
Ramsey, 3994.
Messenger, 4001.
Nickoll, 4106.
Gedge (*Lanjorrois*), 4195.
Hodson, 4203.
Defries (*Schulzer & Co.*), 4213.
Holland, 4216.
Codd & Foster, 4268.

Glasses. *See* "Drinking vessels."

Globes for exhibiting position of heavenly bodies. *See* "Astronomical instruments."

Gloves:
Melhuish, 946.
Bevington, 1030.
Pulvermacher, 1067.
Viles, 1819.
Wulff, 2322.

Glucose. *See* "Sugar."

Glue. *See* "Gum."

Glycerine:
De Lungo (*Tardani*), 3633.

Goblets. *See* "Drinking vessels."

Goffering and crimping:
Robertson, 3445.

Gold and silver cord. *See* "Trimmings."

Gold leaf. *See* "Leaf."

Golden syrup:
Clark (*Marguerite*), 682.

Goloshes. *See* "Boots."

Gongs. *See* "Bells."

Gorse cutters:
Follows & Bate, 2528.

Governors; speed and power indicators:
Fawcett & Coulter, 159.
Kirkman, 200.
Muirhead & Wood, 244.
Gibson & Vowell, 289.
Johnson (*Kitson & Carr*), 521.
Wood, 578.
Clark (*Gardner*), 606.
Allcock, 816.
Holt, 876.
Bonneville (*Schenck & Maurer*), 914.
Head, 923.
Murdoch, 1209.
Brown & Biddell, 1301.
Clayton & Shuttleworth, 1358.
Black, 1367.
Tinne, 1419.
Asquith, 1424.
De Negri, 1437.
Harris, Harris & Love, 1546.
Hammond, 1654.
Jacquemin, jun., 1663.
Picking & Hopkins, 1745.
Newton (*Piatti & De Mutrécy*), 1834.
Murdoch (*Bede & Co. & Farcot & Sons*), 1862.
Hearson, 1878.
Simpson, 1949.
Mills (*Bottum*), 1983.
Bennett, 2046.
Bridgett, 2073.
Robson, 2098.
Higginson, 2104.
Sturgeon, 2279.
Wirth (*Scheller & Berchtold*), 2380.
Holten & Varley, 2446.
Hill, 2710.
De Lorière, 2902.
Bonneville (*Schenck & Maurer*), 2966.
Hyatt (*Brown*), 3007.
Johnson (*Kitson & Carr*), 3059.
Buchholz, 3068.
Rogers, 3158.
Adams, 3164.
Allcock, 3209.
Sudworth, 3229.
Pilkington, 3321.
Chadburn, 3434.
Bower & Bower, 3528.
Spill, 3650.
Lafargue, 3651.
Holman, 3699.
Mein, 3828.
Turner, 4088.
Parker, 4138.

Grain and seeds (treating):
Imray, 325.
Sears, 349.
Chambers, 418.
Phillips, 821.
Hare & Ardron, 998.
Hay, 1138.
Larkin & White, 1302.
Dobelle, 1551.
Guenard, 2075.
Boby, 2300.
Murdoch (*Haggenmacher*), 2547.
Chambers, 2619.
Wetherill, 2682.
Andrews, 2721.
Staniland, 2806.
Gedge (*Alexandre-Balat*), 2929.
Buchholz, 3068.
Smith, jun., 3074.
Gray, 3098.
Alleyn, 4256.
Allin, 4266.

Grain elevators. *See* "Hoists."

Graining and marbling:
Clark (*Callow*), 881.
Dean, sen., 3587.
Tongue (*Ciampanty*), 4101.

Grains or spent malt:
Hays & Hays, 437.
Milburn & Jackson, 2855.

Granaries:
Clark (*Pavy*), 2746.
Symington, 3482.

Granulating machines:
Miller, 925.
Morgan-Brown (*Hersey, Hersey & Gray*), 1233.

Graphometrical instruments. *See* "Mathematical instruments."

Graphoscopes. *See* "Optical instruments."

Grapnels for raising submarine telegraph cables:
Lambert, 4100.

Gratings for protecting windows, doorways, &c.; area and vault gratings:
Johnson (*Hyatt*), 2366.
Hyatt, 2788.
Hyatt, 3256.
Hyatt, 3380.
Hyatt, 3381.
Hyatt, 3658.
Hyatt, 3684.
Hyatt, 3788.
Hyatt, 4241.

Grease (extracting and recovering):
Thompson, 42.
Gedge (*Trottier*), 1299.
Lewis & Hawkins, 1543.
Casper (*Dezuarte & Farinaux*), 1636.
Granville & Johnson, 2540.
Freestone & Humphris, 2729.

Greenhouses. *See* "Horticulture."

Grinding, crushing and pulverising bark, wood, peat and plants:
Elliot (*Stamp*), 788.
Clark (*Challeton*), 945.
Clark, 1216.
Brakell, 1286.
Haggett, 1461.
Stenson & Cuff, 1466.
Clark (*Bocquet & Bénard*), 1884.
Milburn & Jackson, 2004.
Hunt, 2237.
Simpson & Simpson, 2361.
Hunt, 2385.
Bouju, 2416.
Johnson (*Gonzales*), 2479.
Stone, 2678.
Hinton, 2714.
Barlow (*Noury & Masse*), 2771.
Milburn & Jackson, 2855.
Kennelly, 3032.
Lake (*Tisdale*), 3117.
Stone, 3143.
Bass, 3718.
Simpson & Simpson, 4184.

Grinding, crushing and pulverising bones:
Stone, 2678.
Smith, jun., 2964.

Grinding, crushing and pulverising cement, mortar, clay, earths and manure:
Goreham, 665.
Harrison & Butler, 882.
Carr, 1417.
Cole, 2418.
Follows & Bate, 2528.
Lord, 2541.
Rawson, Sillar, Slater & Wilson, 2603.
Stone, 2678.
Greenwood, 3238.
Metcalfe & Massingham, 3329.

Grinding, crushing and pulverising corn, grain, seeds, &c.; dressing flour:
Lake (*Eaton & Hall*), 26.
Fairclough & Fairclough, 350.
Lake (*Parkyn*), 396.
Hull, 994.
Dana (*Smith*), 1120.
Hay, 1138.
Lacroix, 1152.
Carr, 1417.
Haggett, 1461.
Dobelle, 1551.
Dana (*Smith*), 2274.
Cole, 2418.
Follows & Bate, 2528.
Stone, 2678.
Henderson, 2860.
Keohler & Ferguson, 3388.
Douglas, jun., 3624.
Jensen (*Glen*), 3855.

Grinding, crushing and pulverising indigo:
Lord, 2541.

Grinding, crushing and pulverising leather scraps and untanned skins:
Neville, 2918.

Grinding, crushing and pulverising ores, quartz, emery, &c.:
Smith, 23.
Sholl, 525.
Carr, 1417.
Haggett, 1461.
Donald & Atkey, 1693.
Ashcroft, 1758.
Pilkington, 1776.
Roberts, 1857.
Francis (*La Rue*), 1865.
Varley & Furness, 2324.
Cole, 2418.
Ellison, 2429.
Follows & Bate, 2528.
Croll & Dalgairns, 2608.
Smith, jun., 2964.
Greenwood, 3238.
Goodman, 3361.
Hyde & Hyde, 3649.
Peer, Lundquist & Rutherford, 3847.
Ward, 4283.

Grinding, polishing, burnishing, smoothing and surfacing:
Scott, 154.
Clark (*Broomhead*), 320.
Newell, 514.
Brasseur & Wogler, 720.
Brown (*Dodé*), 802.
Cowper, 1413.
Tinne, 1419.
Bousfield (*Lewis*), 1448.
Parsons, 1511.
Viles, 1819.
Gabriel, 2024.
Robbins, 2116.
Newton, 2720.
Crowley, jun., 2820.
Harrison, 2848.
McGregor, 2939.
Mc Voy, 3921.
Smith (*Poole*), 3933.
Johnson (*Cottrell*), 4102.
Wilkinson, 4134.

Grinding and crushing sugar:
Cole, 2418.
Smith, jun., 2964.

Grinding and pulverising rock:
Ivory, 717.
Stone, 2678.

Grinding and sharpening:
Whipp & Mellor, 132.
Kay & Mills, 379.
Mc Intyre, 424.
Haseltine (*Guernsey*), 1352.
Whipp & Mellor, 2275.

Grinding, &c.—*cont.*
Harding & Harding, 2499.
Harrison, 2848.
Johnson (*Pitts, Aldrich & Marble*), 2932.
Bayart, 2949.
Schreiber & Passavant, 3048.
Lee, 3468.
Wilkinson, 4134.

Grinding paints and printers' ink:
Noad, 539.
Haggett, 1461.
Cornelius, 3036.
Kingdon, 3598.
Gardner & Orme, 4086.

Grubbers or cultivators. *See* "Ploughing."

Guide rails for railways. *See* "Railways (permanent)."

Guiding cutting or grinding tools:
Sylvester, 3841.
Sylvester, 4155.

Gullies. *See* "Drains."

Gum; glue; gluing; paste; gum and other spreaders:
Prince (*Flinsch*), 461.
Weigelin, 1338.
Clinch, 2002.
Mills (*Lamb*), 2126.
Thomsôn, 2757.
Harris, 2804.
Kingston, 3000.
Dale & Dale, 3191.
Johnson (*Bymael*), 3360.
Smith (*Melville*), 3767.

Gun carriages. *See* "Fire-arms."

Gun cotton. *See* "Gunpowder."

Gunpowder and other explosive compounds:
Murdoch (*De Rutenberg*), 360.
Mackie, 445.
Roberts, 926.
Newton (*Ruggieri*), 1064.
Bickford (*Spooner & Pyroxyline Manufg. Co.*), 1170.
Newton (*Nobel*), 1570.
Mackie & Faure, 1830.
Brain, 2984.
Wirth (*Beins*), 3194.
Haseltine (*Du Pont & Du Pont*), 3273.
Hoffmark (*Wiener*), 3731.
Mackie & Faure, 3832.
Fenton, 4148.

Guns. *See* "Fire-arms."

Gutta percha (treating and applying):
Cattell, 587.
Haggett, 1461.
Torrey, 2375.
Turner (*Righter*), 3043.
Lake (*McKay*), 3565.
Ramsdon, 4194.


## H.


Hair-dressing; wig making; toilet colours and washes; hair pins:
Galeer, 854.
Haseltine (*Raynolds & Co.*), 2600.
Clark (*Drague*), 3167.
Riviere, 3625.
Barnby, 3725.

Hammers; hammering:
Hodson, 93.
Theaker & Osborn, 313.

Hammers, &c.—*cont.*
Shaw, 455.
Schlesinger (*Grout*), 463.
Sholl, 525.
Barker, 582.
McLeish, 1323.
Haggett, 1461.
Donald & Atkey, 1693.
Pickup, 1811.
Nimmo, 2162.
Thomason, 2510.
Allen, 2785.
Temple, 3429.
Lake (*Rhode Island Horse-shoe Co.*), 4210.

Hammers for marking or numbering timber, &c.:
Steinhoff (*Schmidt*), 88.

Hammocks:
Beadon, 1048.
Alder, 3008.

Handkerchiefs (weaving). *See* "Weaving plain, &c."

Harbour lights. *See* "Lamps."

Harbours; quays:
Paddison, 198.
Mellor, 1767.
Milroy, 2228.
Robertson, 2684.

Harness and saddlery; cleaning and stopping runaway horses:
Van den Bergh, 8.
Haseltine (*McClure, Graham & Claughton*), 13.
Lake (*Small*), 27.
Marshall, 1189.
Maher, 1232.
Morris, 1344.
Bridge, 1513.
Lott, 1605.
Swift, 1979.
Blamiers, 2001.
Newton (*Maurissin*), 2200.
Wulff, 2322.
Robertson, 2399.
Reynolds, 2405.
Pollock, 2639.
Newton, 2955.
Archer, 2965.
Peters, 3042.
Heywood (*Heywood*), 4003.
Careless, 4006.
Okell, 4029.
Williams, 4289.

Harrows. *See* "Ploughing."

Harvesters. *See* "Reaping."

Hat bands:
Vaughan (*Chapin*), 1740.
Condit, 2829.

Hat boxes:
Scruton, 3722.

Hat pegs. *See* "Pegs."

Hats, caps, bonnets; coverings for the head:
Wilson (*Eickemeyer*), 76.
Wells, 219.
Wilson (*Eickemeyer*), 467.
Ash, 544.
Baker (*Bogardus*), 573.
Minshall & Dunkerley, 663.
Gibson, Taylor, Berdsley & Fletcher 866.
Morris, 1344.
Mackie, 1463.
Henson, 1580.
Hampson, Hellewell, Kenyon & Chantler, 1899.
Nisbet, 2111.
Thompson, 2138.
Roberts, 2286.

**Hats, &c.—*cont.***

Lees & Ward, 2408.
Palmer, jun., 2623.
Sim & Anderson, 2735.
Newton (*Waring*), 2743.
Bird, Worth, Fogg & Oldham, 2886.
Simmons, 2926.
Dobson & McKnight, 3128.
Salisbury, 3394.
Worsley, Brelsford & Ashton, 3557.
Ramsay, 3608.
Howard, 3662.
Russell, 3747.
Simmons, 3839.
Sheldon, 4018.
Count de Gendre, 4215.

**Haversacks.** *See* "Knapsacks."

**Hay (baling).** *See* "Presses."

**Haymaking.** *See* "Reaping."

**Healds:**

Bowker, 3.
Brown, Ayrton & Austin, 1632.
Kippax, 1721.
Cass, 2118.
Helm, 2196.
Condit, 2829.
Singleton, 4244.

**Hearth rugs.** *See* "Mats."

**Heaters or foot warmers:**

Sanders (*Sanders*), 625.
Radcliffe, 895.
Darwin, 896.
Suffield, 3984.
Bonneville (*Grandjean*), 4201.

**Heating, obtaining, regulating and distributing heat; utilising waste heat (miscellaneous):**

Rydill, 82.
Konn (*Lodighin*), 91.
Seitz, 197.
Imray, 325.
Silber, 334.
Rydill, 376.
Harrison, 435.
Kenyon, Taylor & Kenyon, 482.
Ramsden, 519.
Emmens, 576.
Clark (*Marguerite*), 682.
Robertson, 708.
Ivory, 717.
Phillips, 821.
Barlow (*Galland*), 827.
Forbes, 835.
Jones, 894.
Fish, 924.
Barclay, 990.
Williams, 1132.
Newton (*Lowman*), 1153.
Forbes, 1191.
Mitchell, 1203.
Clark, 1216.
Wolffram, 1245.
Harper, 1251.
Barker, 1321.
Henderson, 1337.
Weigelin, 1338.
Parlby, 1496.
Brown, 1528.
Clark (*Gérard & Thuillier*), 1608.
Henderson (*Demailly & Brunessar*), 1644.
Jamieson, 1715.
Francis (*La Rue*), 1865.
Lutschaunig & Ricketts, 1896.
Hampson, Hellewell, Kenyon & Chantler, 1899.
Lake (*Wells*), 1922.
Greer, 2101.
Ross, 2214.
Paxman, 3024.
Deacon, 3253.
Silber & Farquhar, 2291.
Jones & Jones, 3378.
Mensing, 3739.
Morton, 3902.
O'Shea, 4153.
Aitken, 4327.
Alleyn, 4356.

**Heating, regulating and distributing heat; utilising waste heat (in furnaces, stoves and flues):**

Smith (*De Chodsko*), 124.
Salmon, 147.
Bowden, 399.
Owen & Hill, 563.
Stanley, 628.
Stanley, 654.
Spencer & Smith, 715.
Tiffany, 798.
Mickle, 803.
Wood, 901.
Mickle, 921.
Woods & De Malortie, 1006.
Goldsbrough, 1181.
Willis, 1269.
Hobson, 1271.
Whitwell, 1288.
Foster & Foster, 1375.
Torr & Johnstone, 1452.
Nixon & Quin, 1522.
Mickle, 1656.
Williams, 1773.
Healey, 1788.
Howatson & Williams, 1812.
Ray (*Heilmann*), 1960.
Nimmo, 2162.
Schwarz, 2218.
Meldrum, 2407.
Salmon, 2419.
Clark, 2489.
Rydill, 2624.
Wilson, 2954.
Newton (*Ray, Jagger & Miner*), 2960.
Johnson (*Sellers & Sellers*), 2982.
Walker, 3017.
Kennelly, 3032.
Sanderson & Proctor, 3082.
Crane, 3094.
Napier, 3357.
Pickwell, 3364.
Browne (*Foundries & Forges Co.*), 3376.
Price, 3462.
Wadsworth, 3491.
Stevenson, 3514.
Hart, 3638.
Peacock & Peacock, 3641.
Crampton, 3687.
Sinclair, 3693.
Fisken, 3900.
Clarke, Clarke & Harrold, 3924.
Williams, 3929.
Russell, 3941.
Davies & Dawson, 4064.
Siemens, 4075.
Spartali, 4091.
Hart, 4159.
Clark (*Douglass*), 4247.
Cadett, 4262.

**Heating, regulating, and distributing heat; utilising waste heat (in ovens, kilns and retorts):**

Boes, 34.
Konn (*Lodighin*), 91.
Boynton & Holmes, 98.
Kininmonth, 102.
Target, 168.
Bacon, 232.
Williams, 268.
Derham (*Morand*), 411.
Hunt (*Colfs-Heyne*), 425.
Jensen (*Erichsen & Maardt*), 602.
Pilkington, 669.
Hughes (*Grimm & Corvin*), 700.
Lake, 787.
Smith (*Mabille*), 804.
Wood, 901.
Clark (*Challeton*), 945.
Robey, Banks & Forester (*De Bettignies Bros.*), 970.
Skoines, 1086.
Jobson, 1258.
Bonner, 1265.
Nicklin & Frost, 1396.
Barrow & Barrow, 1548.
Minton, 1709.
Swonnell, 2436.
Kennelly, 2813.
Wirth (*Beins*), 3194.
Clark, 3521.

**Heating, &c.—*cont.***

Bustard, 3533.
Bell, jun. & Bell, 3910.
Whittle, 3983.
Lord, 4269.
Power, 4271.

**Heating, regulating and distributing heat; utilising waste heat (in steam-boilers):**

Fairbairn & Beeley, 270.
Imray (*Quimbel*), 309.
Erskine & Denby, 312.
Hart, 315.
Rydill, 329.
Shaw, 455.
Lake (*Shedd*), 473.
Barff (*Kidd*), 520.
Johnson, 730.
Spence, 774.
Grimston, 792.
Mickle, 921.
Wright, 964.
Gardner, 985.
Heinemann, 1061.
Hey & Sugden, 1276.
Brakell, 1286.
Brown & Biddell, 1301.
Davey, 1315.
Edmunds, jun., Wood & Wright, 1355.
Black, 1368.
Fitzgerald, 1619.
Gooder, 1674.
Howatson, 1742.
Hacking, 1994.
Wise (*Riot & Roux*), 2135.
Wright, 2243.
Lloyd, 2265.
Rydill, 2624.
Housley, 2814.
Shanks & Thyne, 2869.
Bourget, 2935.
Baillie, 3558.
Ramsden, 3796.
Gillett, 4180.
Clark (*Douglass*), 4247.

**Heating and evaporating water and other liquids:**

Pohl, 4.
Croll, 45.
Konn (*Lodighin*), 91.
Erskine & Denby, 312.
Imray, 325.
Rydill, 329.
Olley & Jackson, 338.
Bowden, 399.
Andrews, 404.
Robertson, 708.
Ramsden, 873.
Wilson, 875.
Jones, 894.
Miller, 925.
Hughes (*Daudenart & Verbert*), 989.
Woods & De Malortie, 1006.
Stubbs, 1034.
Jensen (*Erichsen & Maardt*), 1073.
Lawrence, 1083.
Skoines, 1086.
Watson, 1217.
Jobson, 1258.
Giles, 1366.
Torr & Johnstone, 1452.
Haggett, 1461.
Pohl, 1503.
Wallace, 1539.
Metcalf, 1837.
Rust & Nicholls, 1873.
Beams, 2028.
Hatschek, 2042.
Wise (*Riot & Roux*), 2135.
Evans, 2143.
Field, 2254.
Giles, 2307.
Wirth (*Reinemer & Stemler*), 2320.
Hartley, 2329.
Cain, 2363.
Rydill, 2624.
Grafton, 2725.
Musgrave & Shillington, 2749.
Johnson (*Wainwright, Wiswell & Hurlbut*), 2840.

**Heating, &c.—*cont.***
Dale & Dale, 3191.
Hunter, 3279.
Massey & Hill, 3313.
Imray (*Peyer*), 3350.
Stevenson, 3474.
Clark (*Borden & Borden*), 3675.
Clark (*Borden & Borden*), 3676.
Hamer, 3682.
Sinclair, 3693.
Moore, 3774.
Clarke, Clarke & Harrold, 3924.
Todd, 4056.
Collet, De Lavillasse & Testud de Beauregard, 4166.
Curie, 4181.
Lunge (*Kraut*), 4212.
Alleyn, 4256.
Lord, 4269.

**Heating baths:**
Garon, 62.
Lake, 787.
Giles, 2307.
Ritchie, 3227.
Hunter, 3279.
Verity & Verity, 4096.
Akester, 4172.

**Heating feed water for steam-boilers:**
Baynes, 78.
Konn (*Lodighin*), 91.
Imray (*Quimbel*), 309.
Erskine & Denby, 312.
Olley & Jackson, 338.
Bennett, 367.
Rydill, 376.
Andrews, 404.
Simon (*Büttner*), 412.
Kux, 422.
Sambrook, 596.
Rydill, 691.
Green, 747.
Mayes, 838.
Holt, 876.
Cook, 986.
Nield, 1109.
Shaw & Hunter, 1145.
Howard & Bousfield, 1237.
Willis, 1269.
Black, 1368.
Thomas & Nightscales, 1454.
Oldham, jun., 1531.
Steen, 1626.
Botterill, Botterill, jun., & Wolstenholme, 1744.
Huntington, 1753.
Shepherd, 1849.
Davis, 1861.
Stanley, 1948.
Lamb, 1966.
Beams, 2028.
Horner & Dobson, 2037.
Hughes (*Fairbanks*), 2045.
Paxman, 2150.
Clark (*De Bardel*), 2205.
Sturgeon, 2279.
Bonneville (*Grüninger*), 2305.
Cain, 2363.
Hurd & Simpson, 2594.
Hampton, 2699.
Spartali, 2712.
Smith, 2787.
Arnold, 2887.
Sutcliffe, 2997.
Davies & Walker, 2914.
Walker, 3017.
Paxman, 3024.
Sutcliffe, 3132.
Hydes & Bennett, 3242.
Massey & Hill, 3313.
Noble, 3335.
Galloway, 3369.
Hamilton, 3402.
Lange, 3571.
Haseltine (*Henderson*), 3652.
Sinclair, 3693.
Moore, 3774.
Twibill, 3791.
Ramsden, 3796.
Render, 3815.
Todd, 4056.
Davies & Dawson, 4064.

**Heating, &c.—*cont.***
Spartali, 4090.
Richardson, 4136.
Gillett, 4180.

**Heating or stoving tobacco.** *See* "Tobacco."

**Heating or warming beds:**
Suffield, 3984.

**Heating or warming boats:**
Bonneville (*Grandjean*), 4201.

**Heating or warming buildings and rooms:**
Garon, 62.
Whitwell, 86.
Konn (*Lodighin*), 91.
Lake (*Myers*), 127.
Quelch, 141.
Hunt, 142.
Osborne & Palmer, 198.
Erskine & Denby, 312.
Rydill, 329.
Knaggs, 488.
Cowan, 500.
Barff (*Kidd*), 520.
Dennison, 530.
Ermen, 533.
Greenwood, Saville & Morton, 568.
Verrier, 581.
Owen & Hill, 583.
Steer, 660.
Hughes (*Grimm & Corvin*), 700.
Robertson, 708.
Fawcett, 763.
Worroll, 826.
Gratrix, 833.
Jobson, Messrs., 836.
Lawton, 859.
Radcliffe, 895.
Cooper, 991.
Wolstencroft, 1020.
Moorwood, 1082.
Skoines, 1086.
Landau, 1131.
Watson, 1217.
Whitwell, 1288.
Edmunds, jun., Wood & Wright, 1355.
Clough, 1360.
Denley, 1381.
Torr & Johnstone, 1452.
Haggett, 1461.
Lloyd, 1460.
Skelton & Mobberley, 1647.
Mickle, 1656.
Cowan, 1665.
Williams, 1773.
Watson, 1893.
Milner, 1997.
Evans, 2142.
Giles, 2307.
Hartley, 2329.
Rydill, 2624.
Musgrave & Shillington, 2749.
Hattersley, Messrs., & Ashley, 2862.
Worroll, 2908.
Walker, 3017.
Crane, 3091.
Brady, 3131.
Hunter, 3279.
Jones, 3297.
Ellis, 3311.
Napier, 3357.
Myers, 3368.
Galloway, 3369.
Jaques, 3370.
Wirth (*Boschan*), 3454.
Wadsworth, 3491.
Bentley & Mullard, 3509.
Rydill, 3567.
Hawkins, 3690.
Graham, 3734.
Warren, 3765.
Lutwyche, 3810.
Fisken, 3900.
Edwards, 3905.
Brown, 3915.
Lloyd, 3925.
Kenyon, 3928.
Russell, 3941.
Read, 4016.

**Heating buildings—*cont.***
Moore, 4019.
Cockey & Cockey, 4038.
Verity & Verity, 4096.
Henderson, 4111.
Crossland, 4122.
Akester, 4172.
Strode, Mackenzie & Williams (*Haskins*), 4192.
Jacquet, 4229.
Jacquet, 4230.
Alleyn, 4256.

**Heating or warming carriages:**
Salmon, 147.
Sanders (*Sanders*), 625.
Hughes (*Grimm & Corvin*), 700.
Wise (*Juengling*), 807.
Radcliffe, 895.
Mann, 1309.
Salmon, 2419.
Wirth (*Eichwede*), 2600.
Galloway, 3369.
Suffield, 3984.
Bonneville (*Grandjean*), 4201.

**Heckling fibrous materials.** *See* "Spinning (carding)."

**Helmets.** *See* "Hats."

**Hides and skins.** *See* "Leather."

**Hinges:**
Gibson (*Andrews*), 119.
Haseltine (*Nichols*), 303.
Weber & Roy, 400.
Hodges, jun., 781.
Browne (*Berthoud*), 2331.
Sarjeant, 3355.
Davies, 3707.
Lendall, 3770.
Dee, 3818.
Underhill, 4116.
Haseltine (*Nichols*), 4276.

**Hoeing green crops.** *See* "Ploughing."

**Hoes.** *See* "Tools."

**Hoists; raising, hauling and lowering heavy bodies:**
Jaynor, 66.
Holman, 136.
Wells, 219.
Sudlow, 272.
Jackson, 595.
Ellington, 622.
Terry & Cocker, 664.
Thomson, 885.
Spencer, 893.
Weston, 960.
Strickland, 984.
Allcock, 1038.
Townsend (*Michel*), 1060.
Alex, 1068.
Healy, 1069.
Hewitt & Goff, 1083.
Haseltine (*Du Bois*), 1250.
Leach, 1281.
Arnall, 1306.
Dunn, 1350.
Weston, 1379.
Berthon, 1384.
Fenby, 1431.
Carpenter, 1431.
Underhill & Snow, 1462.
Mc Nabb, 1494.
Mallory, 1642.
Savage, 1730.
Keen & Dence, 1732.
Mellor, 1767.
Healey, 1783.
Batho (*Bruce*), 1869.
Simon, 1848.
Brotherhood, 2003.
Gilbert, 2029.
Johnson (*Lawton & Gordon*), 2029.
Wilson, 2120.
Baxter (*Folkard*), 2124.
Tweddell, Wilson, Ashbee & Pitt 2145.
Morris, 2163.

Hoists, &c.—*cont.*
Bonneville (*Grüninger*), 2305.
Clark & Standfield, 2498.
Coley, Robson & Price, 2505.
Batt, 2520.
Richards, Mott, Mott & Howes, 2593.
Paul, 2657.
Imray (*Société des Mines de Lens*), 2669.
Jackson, 2799.
De Lorière, 2902.
Weston, 3023.
Fisken, 3263.
Davis, 3277.
Weston, 3473.
Haseltine (*Wyss & Studer*), 3487.
Floyd, 3529.
Jordan, 3606.
Rowan, 3665.
Deighton, 3672.
Batho & Hedderwick, 3708.
Bookey, 3875.
Wilson, 3883.
Johnson, 3927.
Greig & Burton, 3940.
Norbury, 4015.
Smith, Stephenson, Vere & Capes, 4032.
Balmforth, Messrs., 4108.
Clarke & Walker, 4149.
Scott, 4190.
Hendrickx & Kunstaedter, 4198.
Harrison, 4257.

Hoists (mine raising apparatus):
Owen, 160.
Barnard, 428.
Siddons, 508.
Wilson, 886.
Mowbray, 965.
Underhill & Snow, 1482.
Stebins, Rosenfield, Mayers & Leon, 2057.
Fowler, 2137.
Owen, 3506.
Johnson (*Agudio & Call & Co.*), 3724.
Dearden, 3873.

Hoists (raising submerged and hauling off stranded vessels):
Findlay, 619.
Debenham, 975.
Derney, 1468.
Baxter (*Folkard*), 2124.
Aakew & Reynolds, 3403.
Vafea & Vafea, 3404.

Hoists (straw, hay and corn elevators):
Watson, 137.
Tasker, 472.
Matthews, 947.
Tasker, 1253.
Andrews, 1275.
Duckham & Birt, 1297.
Keen & Dence, 1732.
Johnson (*Lawton & Gordon*), 2059.
Whitehouse, 2232.
Cottrell, 2666.
Williamson & Dale, 3270.

Holeing coal. *See* "Mining."

Hooks:
Gumpel, 9.
Mowbray, 965.
Green, 1307.
Huish, 1363.
Rhoades, 1571.
Newton (*Lemerre & Vu*), 2134.
Newton (*Turpe*), 2202.
Reynolds, 2405.
Edwards (*Miller*), 2689.
Gingembre, fils, 3412.
Riviere, 3625.

Hooks and eyes:
Riviere, 3625.

Hoops, bands and bale ties:
Daelen, 484.
Hayward, 870.
Foot & Gregory, 1371.

Hoops, &c.—*cont.*
Mc Nabb, 1494.
Stiff, 1544.
Mc Comb (*Johnsen*), 1835.
Newton (*Beard*), 1882.
Gaillon, 2412.
Walker, 2456.
Jones, 2621.
Cooke, 3349.
Hyatt, 3380.
McNabb, 3415.
Bromley, 3819.
Lake (*Jordan*), 4208.

Hop-bine. *See* "Plants."

Hops; spent hops:
Hays & Hays, 437.
Phillips, 821.
Page, 863.

Horse clippers. *See* "Scissors."

Horse hay rakes. *See* "Reaping."

Horse-power engines:
Avery, 2398.

Horse-shoes; shoeing horses:
Rose, 255.
Wightman, 308.
Brown, 426.
Cardozo, 492.
Durnford, 678.
Haggett, 1461.
Lake (*Moran & Moran*), 2100.
Touaillon (*Comte de St. Ange*), 2184.
Hyatt, 3380.
Mendel, 3385.
Hunt (*Hawes*), 3556.
Elliot, 3612.
Haseltine (*National Horse Nail Co.*), 3737.
Gardner, 3824.
Yates, 4188.
Lake (*Rhode Island Horse-shoe Co.*), 4210.
Hughes (*Wheeler*), 4265.

Horticulture; horticultural buildings; conservatories:
Lyttle, 52.
Garon, 62.
Hodson, 93.
Osborne & Palmer, 198.
Erskine & Denby, 312.
Cowan, 500.
Johnson (*Passmore*), 522.
Newton (*Uda & Uda*), 553.
Marsland, 592.
Topham, 643.
Barlow & Walsh, 713.
Radcliffe, 895.
Skoines, 1086.
Edwards, 1134.
Watson, 1217.
Henderson, 1369.
Fenby, 1431.
Cowan, 1665.
Watson, 1893.
Little, 1992.
Evans, 2142.
Tuck, 2144.
Dunn, 2278.
Giles, 2307.
Hartley, 2329.
Lee, jun., 2370.
Hargreaves, 2372.
Dennis & Portway, 2426.
Cunliffe, 2802.
Follows & Bate, 2836.
Hatton & Hatton, 2884.
Phipps, 2970.
Hunter, 3279.
Jones, 3297.
Green & Burrows, 3673.
Warren, 3765.
Lendall, 3770.
Elwell, 3831.
Chambon, 3926.
Messenger, 4001.
West, 4010.
Read, 4016.
Sellers, 4046.

Horticulture, &c.—*cont.*
Verity & Verity, 4096.
Henderson, 4111.
Akester, 4172.
Skinner, 4298.

Hose. *See* "Pipes or hose."

Hosiery. *See* "Stockings."

Hot air-engines. *See* "Air-engines."

Hot bearing indicators. *See* "Indicators (hot bearing)."

Hulling, decorticating, cleaning and polishing rice, grain and seeds:
Sears, 349.
Towlson, 1053.
Lake (*Squier & Squier*), 2767.
Buchholz, 3068.
Smith, jun., 3074.
Gray, 3098.
Clark (*Winters, McGregor, McGregor & Minister*), 4047.
Walker, 4258.
Allin, 4266.

Hurdles. *See* "Fences."

Hydraulic motive-power. *See* "Waterwheels."

Hydraulic rams:
Smith, 23.
Holman, 136.
Clark, 611.
Ellington, 622.
Strickland, 964.
Vickers, 1110.
Worth, 3478.
Darlington & Scott, 3636.
Wilson, 3883.
Scott, 4190.

Hydro-caloric motors:
Henderson (*Demailly & Bruneaux*), 1644.

Hydrocarbons. *See* "Oils of tar."

Hydrochloric acid. *See* "Acids."

Hydro-extractors. *See* "Drying."

Hydrogen gas. *See* "Gas."

Hydrostatic weighbridges. *See* "Weighing."

Hydro-thermic motors. *See* "Oil-engines."

## I.

Ice. *See* "Refrigerating."

Incrustation and sediment (preventing). *See* "Oxidation."

India-rubber (treatment and application):
Welch, 51.
Schoevers, 84.
Gibson (*Andrews*), 119.
Turton & Rogers, 129.
Gedge (*Gouselain*), 202.
Nichols, 215.
Farrow, 218.
Wells, 219.
Bowra & Wood, 223.
Pitt & Cox, 273.
Smith, 324.

India-rubber—*cont.*
Cook, 408.
Carrington, 427.
Johnson (*Reckendorfer*), 443.
Grout, 463.
Salleron, 509.
Quin, 580.
Pilon, 637.
Lake (*Gardiner*), 757.
Lyttle, 791.
Edington, 909.
Lake (*West & Goodwin*), 933.
Hacking & Hacking, 1015.
Van Laak & Gillespie, 1062.
Woodcock, 1119.
Harrop, 1166.
Clark (*Beery*), 1226.
Henderson, 1278.
Brookes (*Wattinne & Roettger*), 1357.
Atkin, 1361.
Henderson, 1369.
Harris, 1383.
Spencer & Smith, 1435.
Haggett, 1461.
Klüh, 1473.
Strange & Cornish, 1559.
Maignan & Franck, 1561.
Maher, 1588.
Rowlett, 1655.
Jamieson, 1715.
Altman, 1748.
Rhodes & Miller, 1756.
Viles, 1819.
Imray (*Fayol*), 1852.
Paget (*Schoubersky*), 1963.
Rowett, 2077.
Firth, 2141.
Macintosh, 2195.
Cramp, 2341.
Torrey, 2375.
Macrone & Mackenzie, 2390.
Gedge (*Cornely*), 2395.
Hickisson, 2463.
Arnold, 2516.
Main, 2544.
Kirkman, 2636.
Watson & Pegler, 2637.
D'Humy, 2640.
Johnson (*Bertrand*), 2688.
Forster, 2734.
Thomson, 2757.
Macintosh, 2844.
Lake (*Gardiner*), 2851.
Tardioli, 2910.
Perry, 2920.
Turner (*Righter*), 3043.
Griswold, 3257.
Unsworth, 3362.
Moseley & Holbrook, 3367.
Johnson (*Perroy*), 3377.
Mendel, 3385.
Dodge, 3425.
Wilkins, 3569.
Holman, 3699.
Smith, 3710.
Tongue (*Buss*), 3712.
Toussaint, 3755.
Hooper, 3780.
Ross, 3807.
Hodges (*Johnson*), 3845.
Henderson & Eley, 3851.
Harris, 3885.
Harris, 3886.
D'Humy, 4000.
Messenger, 4001.
Skaife, Gillett & Bland, 4141.
Bazin, 4274.

Indicating and recording movements of railway points and signals:
Smith, 3213.
Foster, 3316.
Huckvale, 3671.

Indicating boiler pressure. *See* "Gauges."

Indicating direction of ocean and other currents:
Leslie, 2038.
Leslie, 3352.

Indicating direction of revolution of engine driving shafts:
Chadburn, 3434.

Indicating distance travelled in carriages:
Donisthorpe, jun., 1456.
Black, 1876.
Durham & Hupton, 1951.
Haas, jun., 2231.
Bezer, 2466.
Clark, 2629.
Sands, 3145.
Dillet, 3960.
Clark & Whitehouse, 4082.

Indicating entries into carriages or public places and exits therefrom:
Wier, 182.
Smith, 352.
Early, 432.
Donisthorpe, jun., 1456.
Smythe, 1866.
Black, 1876.
Emslie & Emslie, 2309.
Bezer, 2466.
Clark, 2629.
Caldbeck, 2715.
Robertson, 2881.
Bezer, 3160.
Starr, 3204.
Brownjohn, 3423.
Parlour, 3476.
Starr, 3583.
Cooke, 3705.
Ramsden & Dawes, 3860.
Dillet, 3960.
Clark & Whitehouse, 4082.

Indicating fares to pay:
Black, 1876.
Haas, jun., 2231.

Indicating number of hanks spun:
Taylor & Newall, 1974.

Indicating number of impressions made by presses on documents:
Richmond, Messrs., 2146.

Indicating quantity of gas produced:
Maitland (*Hoffman*), 2834.

Indicating speed of carriages, machines, ships, &c.:
Muirhead & Wood, 244.
Cederholm & Peterson, 1394.
Hearson, 1878.
Johnson (*Osborne*), 1947.
Bezer, 2466.
Lafargue, 3651.

Indicating speed of steam and other motive-power machines. *See* "Governors."

Indicating time occupied by carriage drivers:
Haas, jun., 2231.
Bezer, 2466.

Indicating velocity of water flowing through pipes:
Deacon, 937.
Deacon, 4264.

Indicating weight. *See* "Weighing."

Indicating work done in cotton mills:
Wilkinson, 2924.

Indicators (feed-water):
Newton (*Goodrich & Kornblum*), 2977.

Indicators (hot bearing):
Moseley, 2969.
Alley, 3148.

Indicators (steering) for ships. *See* "Steering ships."

Indigo. *See* "Dyes."

Induction coils. *See* "Electricity."

Inexplosive syphoides or vessels for holding explosive liquids:
Lake (*Moride*), 4120.

Infants' feeding bottles. *See* "Feeding bottles."

Infusions and decoctions:
Etzensberger, 2448.
Liebert, 3139.
Mather (*Lavater*), 4017.

Inhaling. *See* "Medical treatment of man."

Injectors and irrigators (hygienic):
Blundell, 2344.

Injectors for furnaces:
Gigodot, 1026.
Williams, 1123.
Gardner (*Gigodot*), 3053.
Wirth (*André*), 3343.

Injectors for steam-boilers:
Dixon, 1400.
Thomas & Nightscales, 1454.
Williamson & Parsell, 1595.
Clark (*Colacicchi*), 1640.
Davis, 1861.
Simpson, 1949.
Johnson (*Sellers & Sellers*), 2161.
Bourgot, 2965.
Noble, 3335.
Bernadac, 4067.

Inks; inkstands; inking; ink pads:
Steinhoff (*Schmidt*), 88.
Gibson (*Andrews*), 119.
Mills & Monkhouse, 123.
Redgrave & Wright, 223.
Gutensohn, 258.
Halfpenny, 262.
Duncan & Wilson, 383.
Parker, 535.
Fish, 905.
Simon (*Bullock Printing Machine Co.*), 958.
Sampson, 1097.
Marston & Kleinau (*Teysonnière*), 1670.
Reeve, 1921.
Mills & Monkhouse, 1971.
Lake (*Carter*), 1962.
Gough, 2106.
Little, 2133.
Richmond, Messrs., 2146.
Plessner, 2222.
Zanni, 2266.
Johnson (*Thibault*), 2296.
D'Humy, 2457.
Mercer, 2459.
Cumming, 2533.
Davies & Higgins, 2576.
Leggett, 2906.
Mac Lean, 2963.
Mackay, 3129.
Newton (*Teysonnière*), 3176.
Clark (*Gaiffe*), 3449.
Kingdon, 3586.
Hyatt, 3684.
Johnson (*Létang & Brissard*), 3711.
Harrild (*Gordon*), 3738.
Smith & Fountain, 3809.
Newton (*Teysonnière*), 3814.
Monkhouse, 3918.
Thomas (*Persoz & Jeanselle*), 4114.
Hunt (*Swain & Todd*), 4260.

**Inlaying; imitation inlaid work:**
Bracewell & Pennett, 1117.
Robbins, 2116.
Hyatt, 3380.
Dean, sen., 3587.
Renaudon, 3887.

**Insects (destroying and keeping away):**
Roberts, 1121.
Morris, 1344.
Plunkett, 1789.

**Insulators; insulating:**
McEvoy, 740.
Cooke, 1903.
Rowett, 2077.
Bonneville (*Radde*), 2091.
Greer, 2101.
Greenwood, 2545.
Moseley, 2969.
Wilkinson, 3083.
Fottrell, 3086.
Pulvermacher, 3519.
Darlow & Fairfax, 3736.
Hooper, 3780.
Gray, 3862.
Gray, 3863.
Hooper & Dunlop, 3997.
Rowett, 4079.
Madsen, 4167.
De Capanema, 4171.
Rubery, 4193.

**Invalid furniture and bedding:**
Haseltine (*Waller & Fowler*), 77.
Poole, 2478.
Arnold, 2516.
Whitmarsh, 2979.
Wilkins, 3569.
Malone, 3811.
Wilcox, 4053.

**Iodine:**
Henry (*Collett & De Lavillasse*), 650.
Hunt (*Reynoso*), 799.
Thiercelin, 1500.
Hunt (*Reynoso*), 3717.
Collet & De Lavillasse, 4135.
Collet, De Lavillasse & Testud de Beauregard, 4166.

**Ironing; sad and flat irons; sad iron holders:**
Wilson (*Eickemeyer*), 76.
Jeffs, 527.
Robertson, 708.
Shepherd, 711.
Webster, 2476.
Hyatt, 3256.
Robertson, 3445.
Williams, 3644.
Hyatt, 3684.
Mensing, 3739.
Cottingham, 3759.
Warren, 3765.

**Irrigating.** *See* "Watering."

**Ivory.** *See* "Bone."

## J.

**Jacks (lifting).** *See* "Hoists."

**Jacks (roasting).** *See* "Cooking."

**Japanning; transferring impressions to japanned goods:**
Kilner & Friston, 1093.
Torr & Johnstone, 1452.
Dean, sen., 3587.

**Jars and pots; jar envelopes and stoppers:**
Codd, 75.
Stocker, 702.
Smith, 759.
Jaques, 815.

**Jars and pots, &c.—*cont.***
Gilbee (*Mégret*), 959.
Isaacs & Isaacs, 2319.
Baker, 3009.
Conradi, 3124.
Noad, 3917.
D'Humy, 4000.
Hubert, jun. & Boissel, 4011.

**Jewellery:**
Joseph, 440.
Carron, 1295.
Brooks & Bull, 1501.
Levi, 1962.
Corbett, 2604.
Fuchy, 3044.
Sandheim, 3141.
Howell (*Richards*), 3274.
Dowler & Smith, 3580.
Creese, 3646.
Edkins, Greaves & Newman, 3685.
Wiley, 3730.

**Joining, connecting and disconnecting (miscellaneous):**
Lake (*Small*), 27.
Stidder, 236.
Pilling & Harlow, 480.
Milburn, 483.
Terry & Cocker, 664.
Stocker, 702.
Nicholson & Nicholson, 731.
Parlby, 768.
Wright, 823.
Griffin (*Babbett, Miles & Hickey*), 908.
Weston, 960.
Debenham, 975.
Alex, 1068.
Nancarrow, 1137.
Highton, 1178.
Morrison & Mitchell, 1198.
Tasker, 1253.
Chisholm, 1316.
Clough, 1360.
Mc Comb (*Johnson*), 1835.
Murdoch (*Snakers*), 1863.
Peile, 1923.
Levi, 1962.
Clark (*Stacy*), 2012.
Varley & Furness, 2324.
Wotherspoon, 2337.
Wotherspoon & Foulis, 2391.
Turner, 2533.
Corbett, 2604.
Livsey (*Hall*), 2625.
Tenwick, 2722.
Weston, 3455.
Hart, 3564.
Jones, 3592.
Sutcliffe & Sutcliffe, 3679.
Browne (*Künzli*), 3702.
Hill & Hill, 3778.
Beaufort, 3931.
Heywood (*Heywood*), 4003.

**Joining, coupling and connecting (pipes, tubes and cylinders):**
Foulis, 59.
Lake (*Myers*), 127.
Asbury, 139.
Salmon, 147.
Erskine & Denby, 312.
Rydill, 376.
Owen, 534.
Noad, 539.
Rydill, 691.
Fish, 884.
Johnson (*Ward*), 1001.
Moy & Shill, 1005.
Lake (*Prall*), 1051.
West, 1158.
Thomas, 1244.
Woodley, 1256.
Weigelin, 1338.
Colls, 1533.
Wotherspoon, 1600.
Richards, 1681.
Abel (*Westinghouse, jun.*), 1735.
Potel, 1752.
Griffith, 2170.
Nicholson, 2199.
Salmon, 2419.
Kesterton, 2497.
Sandiford, 2626.

**Joining, &c.—*cont.***
Forster, 2734.
Macintosh, 2844.
Thompson, 3188.
Thompson, 3221.
Newton (*Galasse-Ketin*), 3308.
Johnson (*Perroy*), 3377.
Truman, 3488.
Steel, 3890.
Morton, 3902.
Tasker (*Blakey*), 3980.
D'Humy, 4000.
Messenger, 4001.
Stanford, 4039.
Steel, 4110.
Heyworth & Wilkinson, 4125.
Phillips, 4130.

**Joining, coupling and connecting (rails, posts, planks, shafts, &c.):**
Lyttle, 52.
Mills (*Cathcart & Negley*), 431.
King, Messrs., 468.
Talbot, 716.
Welch, 778.
Lyttle, 956.
Henderson, 1278.
Arnall, 1306.
Fenby, 1431.
Huddart, 1474.
Lake (*Allen*), 1737.
Fox, 1759.
Watson, 1762.
Wyatt, 1973.
Spencer (*Bull*), 2546.
Brookes (*De Soignie*), 2730.
Mills (*Charlton*), 2810.
Fielding, 3067.
Hayes, 3534.
Walker & Ragon, 3713.
Alley & Handyside, 3904.
Wyatt, 3955.
Messenger, 4001.
Potts, jun., 4081.
Alley & Handyside, 4085.
Whitaker, 4158.
Dering, 4228.

**Joining, coupling and uncoupling (carriages, engines, &c.):**
Glen, 176.
Macneill, 206.
Betteley & Sharer, 238.
Terry & Cocker, 664.
Sayer, 982.
Curtis, 1291.
Green, 1307.
Spencer & Smith, 1435.
Haseltine (*Janney*), 1517.
Rhoades, 1571.
Newton (*Lemerre & Vu*), 2134.
Dwyer, 2304.
Spooner, 2512.
Edwards (*Miller*), 2689.
Gawler, 2737.
Young, 2748.
Skidmore, 2801.
Brockelbank, 2817.
Wirth (*Schalla*), 2992.
Clark (*Speer*), 2993.
Cleminson, 3215.
Richard, 3484.
Imray (*Heberlein*), 3496.
Schroeter, 3582.
Fry, 3681.
Rathbone, 3720.
Cohrs, 3775.
Brockelbank, 3876.
Everett, 4275.

**Joining or piecing china, glass, leather, wood, &c.:**
Harrison, 2488.

**Journals.** *See* "Bearings."

**Jugs; cream jugs; pitchers:**
Redgrave & Wright, 223.
Bates, 1294.
Maxfield & Maxfield, 1926.
Hall, 2078.
Lyster, 2702.
Greener, 3025.
Hyatt, 3634.

## K.


Kaleidographs. *See* "Optical instruments."

Kedges. *See* "Anchors."

Kelp. *See* "Seaweed."

Kettles; kettle holders:
Adames, 74.
Redgrave & Wright, 223.
Spear, 2277.
Tompkins, 3235.
Peacock & Peacock, 3641.

Keys. *See* "Locks."

Kiers:
Horrocks, 690.
Heywood & Duckworth, 2303.
Mason, jun. & Alcock, 2997.

Kilns. *See* "Ovens and kilns."

Kitcheners. *See* "Fire-places."

Knapsacks and wallets:
Page, jun. (*Erichsen*), 2161.
Hathaway, 3140.
Count de Gendre, 4215.

Kneading. *See* "Mixing."

Knife boards; cleaning knives and forks:
Job, 1186.
Driver & Wallace, 2909.
Wilkinson, 4134.

Knitting machines; knitted and looped fabrics:
Lamb & Lowe, 73.
Campion & Campion, 517.
Gilbee (*Procopé*), 564.
Rudolph, 888.
Baladia & Osborne, 917.
Tongue (*Lufbery*), 973.
Symington, 1766.
Ducomet (*Bonamy*), 2377.
Sim & Anderson, 2735.
Cooper, Clarke, Donisthorpe & Corah, 3113.
Symington, 3157.
Griswold, 3257.
Ward, 3458.
Byron (*Merrill*), 3483.
Russell, 3747.
Jones, 3982.

Knives and forks:
Hodson, 93.
Seiferheld (*Deregnaucourt*), 103.
Redgrave & Wright, 223.
Harrison, 577.
Mitchell, 718.
Hunt (*Hodges*), 874.
Nixon & Winterbottom, 1074.
Kilner & Friston, 1093.
Havenhand, 1167.
Cochrane, 1187.
Rollason, 1610.
Ross, 2148.
Smith, 2830.
Harder, 2967.
Bramhall, 3178.
Byron (*Arnold*), 3247.
Smith, 3301.
Rhodes, 3517.
Mills (*Burgess*), 3539.
Icely, 3594.
Johnson (*Mazeron*), 3698.

Knobs (door). *See* "Doors."

Knocking off motions. *See* "Stop motions."


## L.


Labels:
Jaques, 815.
Clinch, 2002.
Clark (*Gaiffe*), 3449.

Lace (making):
Oldknow, 24.
Wright, 117.
Oldknow, 771.
Raworth, 869.
Burton & Smith, 997.
Toone, Archer & Hartshorn, 1018.
Morton, 1699.
Symington, 1766.
Malhère, 2121.
Hancock, 2672.
Payne & Ping, 3134.
Symington, 3157.
Sival, 4207.
Walker, jun., 4281.

Lace (winding and preserving in boxes):
Russell & Dominy, jun., 2492.

Ladders:
Newton (*Uda & Uda*), 553.
Skinner, 4293.

Ladles used in manufacturing iron and steel (lining):
Holland, 4216.

Lamp black:
Skoines, 2362.

Lampascopes. *See* "Magic lanterns."

Lamps; chandeliers; lamp furniture, glasses and shades:
Sutcliffe & Clayton, 148.
Parker-Rhodes, 173.
Plessner, 180.
Redgrave & Wright, 223.
Bailey & Waddington, 293.
Girdwood, 314.
Silber, 334.
Sokolnicki, 336.
Young, 347.
Johnson (*Hitchcock, Sigourney & Rosa*), 356.
Platt, 389.
Jones, 461.
Clark (*Tesse, Lartigue & Prud'homme*), 490.
Emmens, 576.
Zingler (*Dubsky*), 694.
Clark (*Grawitz*), 703.
Haseltine (*White & Knight*), 806.
Wakefield, 814.
Croudace, 977.
Perrier, 1002.
Doty, 1047.
Landau, 1131.
Harper, 1251.
Edmunds, jun., Wood & Wright, 1355.
Harvie, 1403.
Harvie, 1404.
Haggett, 1461.
Skelton, 1487.
Doty, 1498.
Miles, 1506.
Hus, 1587.
Wirth (*Korwan & Flürscheim*), 1611.
Poole, 1671.
Clark (*Planté*), 1713.
Croudace, 1719.
Imray (*Fayol*), 1852.
Newton (*Truesdell*), 1875.
Gardner, 1881.
Siemens (*Siemens & Altenecк*), 2006
Thomas & Piggott, 2107.
Bousfield (*Mackinnon*), 2235.
Cramp, 2260.

Lamps, &c.—*cont.*
Spagnoletti, 2401.
Salmon, 2419.
Turner & Rollason, 2747.
Lake (*Whidden, Reed & Fletcher*), 2779.
Zingler (*Dubsky*), 2789.
Nickoll, 2796.
Walsh, 2842.
Winn, 3004.
Holycake, 3075.
Stone, 3076.
Mewburn (*Pintsch*), 3161.
Woerteler (*Marshall*), 3182.
Stockman & Bennett, 3166.
Silver, 3180.
Burt, 3186.
Price & Wigham, 3198.
Johnson (*Hitchcock, Sigourney & Rosa*), 3212.
Ritchie, 3227.
Silber & Farquhar, 3291.
Guthrie, 3303.
Weems, 3457.
Hyatt, 3684.
Hyde, Hyde & Aldis, 3761.
Edwards, 3905.
Souchard, 4105.
Nickoll, 4106.
Defries (*Schulzer & Co.*), 4213.
Eggrinton (*Stone*), 4240.
Gardner, 4243.
Armitage & Taylor, 4254.

Lap machines. *See* "Spinning (carding)."

Lard; preserving lard:
Coleman, 2585.
Featherstonhaugh, 3389.
Lake (*Roudebush*), 4209.

Lasts; lasting machines:
Lewis, 323.
Morgan-Brown (*Brooks*), 823.
Lake (*McKay*), 3565.

Latch furniture. *See* "Locks."

Lathes. *See* "Turning."

Lavatories, wash-stands and appliances:
Shanks, 199.
Stidder, 236.
Blundell, Messrs., 671.
Tylor, 907.
Powell, 1325.
Shanks, 2021.
Blundell, 2344.
Wheeler, 2503.
Main, 2544.
Hunt (*Bate*), 2794.
Tozer, 3006.
Poth & Simpson, 3431.
Johnson (*Cottrell*), 4102.

Lays. *See* "Weaving."

Leaf (gold, silver and other):
Haseltine (*Wood*), 3537.

Leak detectors. *See* "Ships."

Leather, skins and hides; substitutes for leather:
Rawle & Evans, 14.
Bentley & Garth, 145.
Larue, 172.
Pitt & Cox, 273.
Haley & Haley, 323.
Ibbetson, 378.
Prince (*Flinsch*), 461.
Rowbotham & Richardson, 654.
Gillett, 754.
Hunt & Hopwood, 783.
Coogan, 899.
Tullis, 1023.
Vickers, 1105.
Pullman, jun. & Edmonds, 1241.
Morris, 1344.
Kitchin, 1479.
Lott, 1605.
Blakey, 1723.

**Leather, &c.—*cont.***
Clark (*Schmidt-Ramspacher*), 2178.
Evershed, 2204.
Haseltine (*Davis & Armstrong*), 2353.
Croft, 2384.
Banks, 2468.
Harrison, 2488.
Eastwood & Ainsworth, 2502.
Granville & Johnson, 2540.
Neville, 2918.
Haseltine (*Forward*), 3060.
Turner, 3727.
Goulstone, 3768.
Briggs & Mason, 3836.
Allen, 3886.
Griswold (*Clark*), 4140.

**Leggings; gaiters; bootakins:**
Fox, 390.
Smyth, 609.
Gingembre, fils, 3412.
Warmington, 3621.
Newton (*Shepard*), 3864.
Scott, 4041.

**Leggings for animals.** *See* "Harness."

**Lemons (paring and slicing).** *See* "Preserving food."

**Lenses:**
Young, 347.
Nickoll, 2796.
Nickoll, 4106.

**Let-off motion in looms:**
Griffin (*Babbett, Miles & Hickey*), 908.
Smith, 1879.
Catlow, 2773.

**Letter-cases.** *See* "Bill-cases."

**Letter-paper and envelopes (combined).** *See* "Envelopes."

**Letters and numerals:**
Noad, 539.
Icely, 3594.

**Levelling:**
Clark (*Carpenter*), 1090.

**Library shelves.** *See* "Books."

**Life boats and vessels:**
Hough, 659.
Tolson, 782.
Christie, 922.
Dean, 996.
Jolley, 1029.
Beadon, 1048.
Brough, 1312.
Macintosh, 1345.
Berthon, 1384.
Deacon, 1542.
Roper, 1560.
Cameron, 1581.
Coombe, 1673.
Verran, 1747.
Torrey, 1913.
Robertson, 1937.
Christie, 2027.
Torrey, 2375.
Newton (*Fleetwood*), 2388.
Weatherdon, Colborne & Barrington, 2462.
Chapman, 3058.
Lucop, 3062.
Clark (*Adams*), 3420.
Anderson, 3999.
Bonneville (*Fontaine*), 4260.

**Life buoys and preservers; saving from drowning:**
Davis, 353.
Davis, 354.
Dolby, 449.
Parratt, 469.
Rogers, 491.
Edington, 909.

**Life buoys, &c.—*cont.***
Jolley, 1029.
Jones, 1042.
Beadon, 1048.
Lake (*Mountain*), 1223.
Hurst, 1247.
Brough, 1312.
Macintosh, 1345.
Altman, 1748.
Stewart, 2206.
Cogswell, 2495.
Hughes (*Peck*), 2670.
Roturier, 3057.
Lake (*Mountain*), 3200.
Snoulten & Hurst, 3217.
Ramsay, 3608.
Smith, 3735.
Storey, 3961.
Léchaudée, 4132.
Bazin, 4274.

**Lifting machines.** *See* "Hoists."

**Light (electric):**
Wilde, 618.
Siemens (*Siemens & Altaneck*), 2006.
Greer, 2101.
Wirth (*Beins*), 3194.
Faure, 3540.
Verdeau, 3943.

**Light (photographic):**
Sell, 3288.

**Lightesium:**
Medlen, 3426.

**Lighthouses; lightships:**
Young, 347.
Tolson, 782.
Debenham, 975.
Clark (*Pavy*), 2746.
Spong & Spong, 2754.
Holmes, 2917.
Defries (*Schulzer & Co.*), 4213.

**Lighting gas.** *See* "Gas-burners."

**Lightning conductors:**
Lyttle, 52.

**Lime and its compounds:**
Bentley & Garth, 145.
Latham, 331.
McDougall, 393.
Chappell, 704.
Forbes, 835.
Bonner, 1265.
Thiercelin, 1500.
Fitz-Gerald & Molloy, 2102.
Howarth, 2364.
Spence, 3071.
Johnson (*David*), 3190.
Wirth (*Beins*), 3194.
Forbes, 3205.
Forbes, 3530.
Scott, 3742.
Forbes, 4160.
Arrott, 4164.

**Lime kilns.** *See* "Ovens and kilns."

**Linch and split cotter pins:**
Farmer & Turner, 2826.

**Lining furnaces.** *See* "Furnaces."

**Links:**
Leigh (*Bunster*), 15.
Burt, 57.
Peacock, 364.
Hoffmark (*Schpakowsky*), 2359.
Riley, 3172.
Bromley, 3819.

**Links and torches.** *See* "Torches."

**Liqueurs; liqueur frames or stands:**
Rhodes, 382.
Johnson (*Eymael*), 3360.

**Liquors (ageing).** *See* "Ageing."

**Lithographing.** *See* "Printing.

**Loading waggons.** *See* "Carriages (loading)."

**Loam.** *See* "Clay."

**Lockets:**
Corbett, 2604.

**Locks; keys; lock furniture:**
Burton, 47.
Wiles, 65.
Power, 152.
Perman & Whitaker, 194.
Nichols, 215.
Hookham & Hookham, jun., 240.
Collins & Arnot, 462.
Cooper, 653.
Botwood, 742.
Morgan-Brown (*Count von Seilern*), 1057.
Landau 1131.
Carpenter, 1481.
Rhoades & Barrett, 1694.
Chatwood, 1846.
Fox, 1932.
Bousfield (*Moody*), 2023.
Hayward, 2050.
Mansbridge, 2219.
Greenwood, 2545.
Gardner & Jennings, 2586.
Hunt (*Miller & Middleton, jun.*), 2793.
Edwards, 3029.
Harrington, 3081.
Vaughan, 3159.
Nott, 3265.
Ratcliff, 3453.
Chatwood, 3550.
Jubber, 3661.
Barton, 3967.
Maxwell, 4064.
Barton, 4139.

**Looking-glasses; suspending mirrors:**
Whitburn, 48.
Johnson (*Masson*), 406.
Brasseur & Wogler, 720.
Brown (*Dodé*), 802.
Smith, 2374.
Weston, 3455.

**Looms.** *See* "Weaving."

**Looped fabrics.** *See* "Knitting."

**Low water indicators.** *See* "Gauges."

**Lozenges and wafers:**
Amnéus (*Almén*), 1451.
Kay & Kay, 1975.

**Lubricating.** *See* "Oiling."

**Luminous relief stamping.** *See* "Embossing."

**Lustral or polishing liquids.** *See* "Polishes (liquid)."

## M.

**Magazines (powder):**
Neville, 2918.
Spartall, 3197.

**Magazines or cartridge holders.** *See* "Cartridges."

**Magic lanterns and views:**
Hodgson, 2132.
Souchard, 4105.

**Magma:**
Thompson, 42.

**Magnesia and its compounds; magnesium:**
Newall, 1741.
Dixon (*Cobley*), 2981.
Wirth (*Beins*), 3194.
Weldon, 3805.

**Magnetism.** *See* "Electricity."

**Magnifying pictures.** *See* "Optical instruments."

**Malt:**
Phillips, 821.
Wise, jun., 1098.
Larkin & White, 1302.
Swonnell, 2436.
Wetherill, 2682.
Wirth (*Von Schlemmer*), 3294.
Branson, 3456.

**Manganese compounds:**
Kuhlmann, 847.
Weldon, 868.
Browne (*Foundries & Forges Co.*), 2335.

**Mangling:**
Alley, 537.
Harlow, 1127.
Taylor & Wilson, 1182.
Pilkingson, 1776.
Bell, 3443.

**Manometers:**
Hugon, 1593.

**Mantel-pieces:**
Whitburn, 46.
Rowbotham & Richardson, 684.
Hyatt, 3788.

**Mantles.** *See* "Dresses."

**Mantlets.** *See* "Shields."

**Manure; treating sewage; manure pits:**
Thompson, 42.
Spence, 50.
Scott, 154.
Target, 168.
Hamilton, Preston & Jones, 187.
Robey, 230.
Jacobsen, 266.
Scott, 296.
Johnson (*Coignet, Son & Co.*), 305.
Latham, 331.
McDougall, 393.
Chantrell, 499.
Maquay, 511.
Campbell, 513.
Barff (*Kidd*), 520.
McDougall, 542.
Atkins, 556.
Scott, 570.
Hoey, 712.
Durruthy & Lissagaray, 809.
Forbes, 835.
Wadsworth, 841.
Darwin, 896.
Symington, 912.
Robey & Chantrell, 957.
Wolstencroft, 1020.
Jensen (*Erichsen*), 1055.
Alsing, 1319.
Scott, 1445.
Thiercelin, 1500.
Scott, 1509.
Brown, 1555.
Moriarty (*Céré*), 1686.
Green, 1885.
Townsend, 1967.
Milburn & Jackson, 2004.
Bodmer & Bodmer, 2026.
Leigh, 2071.
Hamilton, 2114.
Manock & Manock, 2125.
Marsden & Collins, 2317.
Howarth, 2364.

**Manure, &c.—*cont.***
Knott, 2442.
Hamilton & Preston, 2450.
Jacobsen, 2454.
Jacobsen, 2455.
Follows & Bate, 2528.
White, 2532.
Robey, 2534.
Stephens, 2581.
Leigh, 2638.
Rawson, Sillar, Slater & Wilson, 2662.
Hughan, 2760.
Crookes, 2790.
Goodall, 2791.
Milburn & Jackson, 2855.
Lake (*Storer*), 3070.
Spence, 3071.
Tamin, 3151.
Liernur, 3168.
Whitthread, 3169.
Metcalfe & Massingham, 3329.
Towle, 3331.
Spence & Dunn, 3356.
Greenstreet, 3485.
Haseltine (*Wyss & Studer*), 3487.
Bray, 3490.
Milnes, 3541.
Fraser & Watson, 3632.
Scott, 3742.
Mills (*Sim*), 3763.
Smith (*Melville*), 3767.
White, 3781.
Gilbee (*Wahlenberg*), 3799.
Green, 3833.
Wildsmith, 4007.
Ramsay, 4092.
Curie, 4181.
Bodmer, 4284.

**Manure distributors:**
Edwards, 243.
Griffin (*Remington*), 1594.
Dening, 1953.
Willacy, 2198.
Rainforth, sen., & Rainforth, jun., 3660.

**Manure forks:**
Parkes & Parkes, 3691.
Pearson & Grinold, 3966.

**Maps:**
De Bastos, 1856.
Nisbet, 2111.

**Marble.** *See* "Stone."

**Marbling and graining.** *See* "Graining."

**Marine-engines.** *See* "Steam-engines."

**Mariners' compasses.** *See* "Compasses."

**Marking inks:**
Newton (*Teysonnière*), 3176.

**Marking or printing tickets.** *See* "Printing paper."

**Marking or ruling paper.** *See* "Rulers."

**Marking or scoring games.** *See* "Registering."

**Marking or ticketing goods.** *See* "Ticketing."

**Marking or stamping paper, linen, &c.** *See* "Stamping machines."

**Marking timber:**
Steinhoff (*Schmidt*), 88.

**Maroons:**
Pain, 600.

**Marquees.** *See* "Tents."

**Mashing.** *See* "Mixing."

**Matches; match boxes:**
Pilon, 637.
Clark (*Grawitz*), 703.
Bonneville (*Biennoit*), 1346.
Browne (*Berthoud*), 2331.
May, 2417.
Conradi, 3124.
Pace, 3272.
Loomes, 3300.
Cribb & Rackham, 3326.
Collins, 3683.
Dee, 3818.
Henderson (*Anne*), 3959.
Roman, 4177.

**Matchets.** *See* "Swords."

**Mathematical instruments:**
Morris, 29.
Norris, 504.
Lanzirotti, 1703.
Lüdeke, 2892.
De Bylandt, 3232.
Cluzet & Simon, 3239.
Morris, 3948.

**Mats; table mats; rugs:**
Mannini, 1530.
Henson, 1580.
Spear, 2277.
Lake (*Crossley*), 2293.
Hyatt, 3256.
Hyatt, 3684.

**Mattresses.** *See* "Upholstery."

**Meal.** *See* "Grinding corn."

**Measures for taking medicine:**
Hubert, jun. & Boissel, 4011.

**Measures or flexible squares for tailors, &c.; measuring and drafting for wearing-apparel:**
Holland (*Johnston*), 1912.
Armitage, 2665.

**Measuring acids, &c.:**
Clark (*Nichols*), 1205.

**Measuring and indicating speed of currents of water.** *See* "Current meters."

**Measuring and registering liquids drawn from casks, cisterns, &c.:**
Faulkner & Tatters, 1392.
Bostelmann, 1447.
Robinson, 2713.
Trueman, 3803.

**Measuring and registering the supply of corn, seeds and grain in granaries, mills, stables, &c.:**
Wyatt, 632.
Norris, 2143.
Baxter, 2421.
Clark (*Pavy*), 2746.

**Measuring coal for charging retorts:**
Rowland, 1287.

**Measuring distances on maps, drawings, &c.** *See* "Chartometers."

**Measuring electric currents, resistances and forces.** *See* "Galvanometers."

**Measuring metal rods and wire:**
Rylands, 817.

**Measuring speed of ships.** *See* "Ships' logs."

**Measuring timber, walls, flooring, &c.:**
Morris, 3946.

**Measuring water supplied to closets and cisterns:**
Hoey, 712.
Jobson, 1066.
Davies, 1579.
Charles, 1614.
Ronald & Farmer, 1676.
Ross, 3807.
Duty, 4128.

**Measuring woven fabrics:**
Hacking & Hacking, 1015.
Lake (*Jobbins*), 3393.

**Measuring yarn in winding frames:**
Raworth, 3411.

**Meat extract.** *See* "Preserving food."

**Meat (preserving).** *See* "Preserving food."

**Meat stands.** *See* "Dishes."

**Mechanical movements (right and left hand):**
Jarman, 164.

**Medical treatment of animals:**
Smith, 334.
Grigg, 786.
Ivison, 1385.
Thompson, 1868.
Blundell, 2344.
Durant, 2825.
Selman, 3467.
Goulstone, 3768.
Hunt (*Reynoso*), 4290.

**Medical treatment of man:**
Chislett, 87.
Broad, 515.
Pulvermacher, 1067.
Arnold, 1406.
Bartlett, 1567.
Pulvermacher, 1969.
Haseltine (*Hunter*), 2257.
Hoghton, 2343.
Blundell, 2344.
Arnold, 2516.
Daniels, 2631.
Villiers & Mayer, 2751.
Mackay, 2894.
Pulvermacher, 3519.
Darlow & Fairfax, 3736.
Lindemann, 3871.
Diver, 3892.
Newton (*Waldenburg*), 4151.

**Medicines:**
Henry (*Collett & De Lavillaesse*), 650.
Amnéus (*Amnéus*), 1451.
Kay & Kay, 1975.
Haseltine (*Lloyd*), 2311.
Saldanha, Paes & Hopcraft, 2484.
Hunt (*Reynoso*), 2582.
Haseltine (*Lloyd*), 2761.
Beque, 3990.
Mitchell, 4231.
Hunt (*Reynoso*), 4290.

**Mercury:**
Robinson, 1708.
Haseltine (*Kirk & Griffith*), 2904.

**Metallic plates (cleansing):**
Thomas & Morris, 1049.
Gedge (*Trottier*), 1299.
Parsons, 1511.
Llewellyn, 1669.

**Metallic salts:**
Haseltine (*Meylert*), 213.
Gutensohn, 258.
Noad, 539.
Thompson, 1533.
Haseltine (*Pope & Sawyer*), 1641.

**Metallic salts—*cont.***
Harcourt & Fison, 2685.
Johnson (*Wainwright, Wiswell & Hurlbut*), 2840.
Dixon (*Cobley*), 2961.
Cornelius, 3056.
Spence, 3071.
Tamin, 3151.
Dale & Dale, 3191.
Smith, 3573.
De Lungo (*Turdani*), 3633.

**Metals (annealing, tempering and casehardening):**
Haseltine (*Alexander*), 326.
Sharp, 429.
Woodruff, 773.
Lewis, 1780.
Willans, 1990.
Hadfield, 2700.
Willans, 3716.
Lewis, 3721.

**Metals (boring).** *See* "Boring."

**Metals (casting and moulding):**
Stroudley & Drummond, 6.
Cooper, 16.
Ireland (*Pink*), 263.
Pilling & Harlow, 480.
Gascoyne, 496.
Noad, 539.
Martin, 697.
Hampton, 842.
Haseltine (*Dougherty*), 932.
Wirth (*Asthoewer*), 1135.
Beecroft, 1195.
Johnson (*Holmes*), 1221.
Shaw, 1298.
Cowper, 1413.
Tooth & Tooth, jun., 1414.
Haggett, 1461.
Foster & Lockwood, 1606.
Healey, 1788.
Hansen, 1810.
Willans, 1990.
Johnson (*Lobdell*), 2061.
Lake (*Lavraff*), 2080.
Stead, 2130.
Griswold, 2176.
Mapplebeck, 2216.
Skoines, 2262.
Hunt, 2585.
Reynolds, 2405.
Hackney, 2422.
Harris, 2473.
Hadfield, 2700.
Cowper, 2827.
Barker, 2885.
Richards, 2895.
Simonds & Dyer (*Sax*), 3120.
Wilson, 3237.
Fenton & Cockayne, 3354.
Byron (*Arnold*), 3365.
Mills (*Burgess*), 3589.
Fraser & Watson, 3632.
Toussaint, 3666.
Hyatt, 3684.
Johnson (*Mazeron*), 3698.
Moore, 3801.
Dickinson, 3896.
Pearson & Grinold, 3966.
Bartlett, 4145.
Dering, 4228.
Mackintire, 4287.

**Metals (coating).** *See* "Coating metals."

**Metals (cutting).** *See* "Cutting metals."

**Metals (forging, hammering, welding, bending and shaping):**
Henson, 191.
Wilson, 239.
Wightman, 308.
Theaker & Osborn, 313.
Haseltine (*Alexander*), 326.
Gedge (*Michelet*), 403.
Daelen, 484.
Sholl, 525.
Armstrong, 532.
Barker, 582.

**Metals (forging, &c.)—*cont.***
Körting, 626.
Michaud, 629.
Alley, 911.
Strickland, 984.
Newton (*Lowman*), 1153.
Roberts, 1169.
McLeish, 1323.
McKay & Macgeorge, 1365.
Haggett, 1461.
Grice & Harrison, 1625.
Pilkington, 1776.
Hadfield, 1787.
Smith, 1803.
Tweddell, Wilson, Ashbee & Platt, 2145.
Nimmo, 2162.
Platt & Tweddell, 2168.
Newton (*Caumon* (*Absterdam*)), 2374.
Thomason, 2510.
Allen, 2785.
Bramhall, 3178.
Temple, 3429.
Haseltine (*Wyss & Studer*), 3487.
Wilkins, 3569.
Fenby, 3590.
Crampton, 3687.
Lake (*Popping*), 3978.
Tasker (*Blakey*), 3980.
Lake (*Rhode Island Horse-shoe Co.*), 4210.
Holland, 4216.

**Metals (grinding and polishing).** *See* "Grinding, polishing."

**Metals (rolling):**
Kesterton, 53.
Kesterton, 54.
Law & Law, 71.
Roberts, 94.
Pritchard, 106.
Haseltine (*Perkins*), 128.
Salmon, 147.
Hale & Matthews, 264.
Walton, 337.
Richardson & Watson, 370.
Daelen, 484.
Johnson (*Ostrander*), 557.
Michaud, 629.
Talbot, 716.
Rylands, 817.
Hayward, 870.
Hounsell, 934.
Gillon & Dujardin, 1025.
Nixon & Winterbottom, 1074.
Haggett, 1461.
Yates, Yates & Kellett, 1518.
Timmis, 1521.
Thomas (*Thomas*), 1755.
Pilkington, 1776.
Day (*Henderson*), 1850.
Garrett, 2054.
Johnson (*Sellers & Sellers*), 2060.
Nimmo, 2162.
Varley & Furness, 2324.
Newton (*Caumon* (*Absterdam*)), 2374.
Gaillon, 2412.
Salmon, 2419.
Coley, Robson & Price, 2505.
Stoker, 2525.
Leffler, 2590.
Barker, 2885.
Lake (*Morrell*), 3104.
Walton, 3338.
Cooke, 3349.
Fairbank (*Vanstone & Hollings*), 3440.
Tongue (*Vigour*), 3520.
Hunt (*Hawes*), 3556.
Mills (*Burgess*), 3589.
Fenby, 3590.
Crampton, 3687.
Johnson (*Mazeron*), 3698.
Bennett, 3787.
Smith (*Poole*), 3933.
Lauth (*Williams*), 3947.
Tasker (*Blakey*), 3980.
Lake (*Rhode Island Horse-shoe Co.*), 4210.
Lake (*Rhode Island Horse Shoe Co.*), 4263.
Hughes (*Wheeler*), 4265.

**Metals (smelting, reducing and refining); treating ores; obtaining iron and steel:**
Boundy, 17.
Newton (*Goodrich, Hillman & Goodrich*), 90.
Crispin, 122.
Salmon, 147.
Stevens, 216.
Riley & Henley, 254.
Gutensohn, 258.
Borlase, 269.
Bayley, 292.
Richardson & Watson, 370.
Gedge (*Michelet*), 403.
Sharp, 429.
Shaw, 455.
Werdermann, 474.
Werdermann, 476.
Willans, 547.
Lake (*Büttgenbach*), 560.
Rochussen (*Daelen*), 562.
Stanley, 628.
Bell & Goodman, 641.
Webster, 645.
Deakin, 672.
Robertson, 708.
Lancaster & Swindells, 714.
Johnson, 730.
Jukes, 736.
Smith, 759.
Mickle, 803.
Keene (*Baudvin*), 834.
Kuhlmann, 847.
Ramsden, 873.
Francis (*La Rue*), 930.
Barclay, 990.
Johnson (*Holmes*), 1221.
Clark (*Hillman*), 1227.
Maybery, 1236.
Brakell, 1286.
Larkin & White, 1302.
Ecroyd & Wass, 1318.
Barker, 1321.
Critchlow, 1351.
Knowles, 1374.
Smith (*Martin*), 1397.
Tooth & Tooth, jun., 1414.
Gerhard & Caddick, 1477.
Smith, 1478.
Browne (*Foundries & Forges Co.*), 1574.
Imray (*Loiseau*), 1623.
Henderson (*Edgcome*), 1645.
Skelton & Mobberley, 1647.
Ormiston, 1660.
Robinson, 1708.
Parkes, 1736.
Howatson, 1742.
Williams, 1773.
Healey, 1788.
Howatson & Williams, 1812.
Scott, 1833.
Francis (*La Rue*), 1865.
Lutschaunig & Ricketts, 1895.
Evrard, 1927.
Ray (*Heilmann*), 1960.
Bodmer & Bodmer, 2026.
Lockwood, 2051.
Haseltine (*Harding*), 2064.
Cochrane, 2113.
Parkes, 2151.
Nimmo, 2162.
Binks, 2169.
Rae, 2297.
Browne (*Foundries & Forges Co.*), 2335.
Gaillon, 2414.
Salmon, 2419.
Vaughan (*Lesrmann & Aldendorff*), 2481.
Cox, 2483.
Johnson (*Gallet*), 2487.
Coley, Robson & Price, 2505.
King, 2574.
Wood, 2694.
Barber & Ingham (*Burns*), 2711.
Green, 2762.
Rowe & Johnson, 2769.
Hauberg, 2775.
Wright (*Guillem*), 2778.
Johnson (*Pernot*), 2819.
Muntz & Sharp, 2843.
Haseltine (*Kirk & Griffith*), 2904.

**Metals (smelting, &c.)—*cont.***
Boyd (*Farinaux, Fichaux, Girol & Sartoris*), 2951.
Newton (*Miner*), 2953.
Newton (*Ray, Jagger & Miner*), 2960.
Dixon (*Cobley*), 2981.
Johnson (*Sellers & Sellers*), 2983.
Gardner (*Gigodot*), 3053.
Lake (*Tisdale*), 3117.
Sheehan, 3203.
Hyde & Hyde, 3236.
Hahn (*Jacoby*), 3246.
Byron (*Arnold*), 3247.
Voisin, 3252.
Delalot, 3268.
Blacker, 3269.
Richardson, 3283.
Sherman, 3323.
Sherman, 3324.
Napier, 3357.
Browne (*Foundries & Forges Co.*), 3376.
Jones & Jones, 3378.
Coombe, 3382.
Zenger, 3384.
Heatherington, 3424.
Price, 3462.
Scott, 3505.
Danks, 3566.
Danks, 3577.
Mills (*Burgess*), 3589.
Ormiston, 3609.
Casson, 3625.
Hart, 3638.
Deighton, 3672.
Heys, 3674.
Leigh, 3678.
Crampton, 3687.
Barnard, 3715.
Willans, 3716.
Johnson (*Baker*), 3744.
Pettitt, 3754.
Wall & Penn, 3776.
Ramsden, 3796.
Wirth (*André*), 3843.
Peer, Lundquist & Rutherford, 3847.
Thompson, 3849.
Parker & Wade, 3868.
Scott & Heys, 3912.
Williams, 3929.
Holland, 3961.
Walker, 4048.
Haseltine (*Ricketts*), 4070.
Siemens, 4075.
Hart, 4159.
Holland, 4216.
Hyatt, 4241.
Alleyn, 4256.
Bodmer, 4284.
Johnson (*Pernot*), 4291.

**Metals (soldering and brazing):**
Adames, 74.
Cutter (*Willis*), 1646.
Clark, 3442.
Henry (*Peltier & Paillard*), 4237.

**Meters (corn).** *See* "Measuring and registering corn."

**Meters for gas and fluids:**
De Castro, 12.
Gedge (*De Kercado*), 104.
Robertson, 248.
Mewburn (*Deplechin & Matheliu*), 409.
Robertson, 448.
Edwards, 541.
Glover, 729.
Fleury, 762.
Smith, 906.
Tylor, 907.
Deacon, 937.
Clark (*Bonnefond*), 1330.
Faulkner & Tatters, 1392.
De Castro & Burton, 1637.
Wood, 1643.
Bousfield (*Eickemeyer*), 1794.
Telling & Johnson, 1807.
Hood, 1915.
Wincen, 2070.
Imray (*Gordon*), 2209.

**Meters—*cont.***
Henderson (*Nicolas, Chamen & Co.*), 2259.
Bonneville (*Johnson*), 2342.
Baxter, 2421.
Muller, 2471.
Robinson, 2713.
Sanderson & Proctor, 3063.
Michel & Frager, 3119.
Fischer, 3175.
Quick, jun., & Restler, 3363.
Tongue (*Buss*), 3712.
Trueman, 3803.
Robinson, 3850.
Moore, 3939.
Deacon, 4264.

**Mica (silvering):**
Woerteler (*Marshall*), 3152.

**Microscopes; night microscopes:**
Grey, 276.
Van Tenac, 2347.
Cooke & Emary, 2445.

**Middlings or sharps.** *See* "Grinding corn."

**Mildew (preventing).** *See* "Preserving."

**Military trimmings.** *See* "Trimmings."

**Milk (condensing, preserving and treating):**
Lawrence, 1063.
Clark (*Howe*), 1428.
Rust & Nicholls, 1873.
Phibbs, 3585.
Clark (*Borden & Borden*), 3671.
Clark (*Borden & Borden*), 3674.

**Millstones.** *See* "Stone."

**Mincing and sausage machines:**
Hunt, 3524.

**Mining and quarrying (ascending and descending shafts):**
Owen, 160.
Barnard, 428.
Siddons, 508.
Wilson, 886.
Weston, 960.
Mowbray, 965.
Underhill & Snow, 1482.
Hadfield, 1787.
Fowler, 2137.
Urquhart, 2332.
Mills (*Hypersiel*), 2550.
Henry (*Deprez*), 2876.
Johnson (*Agudio & Cail & Co.*), 3724.
Dearden, 3873.

**Mining and quarrying (cutting or getting coal, stone, &c.):**
Gay, 95.
Edwards, 541.
Macdermott, 679.
Simpson, 767.
Reidy, 846.
Rigby, 879.
Stubbs & Cottam, 916.
Darlington, 1168.
Davey & Watson, 1267.
Edwards, 1290.
Bonneville (*Biennais*), 1346.
Morgan-Brown (*Tosselli*), 1440.
Cranston, 1455.
Ball, 1638.
Donald & Atkey, 1693.
Darlington, 1734.
Mackie & Faure, 1830.
Clapp, 1900.
Beaumont, 1919.
Hanson, 1936.
Brydon & Davidson, 1991.
Ainsley & Hall, 2165.
Lake (*Mc Kean*), 2363.
Imray (*Gottheil*), 2366.

Mining, &c.—*cont.*
Walker, 2568.
Hurd & Simpson, 2594.
Carey, 2680.
Stone, 2706.
Lucas & Nichols, 2732.
Norris, 2815.
Brain, 2976.
Brain, 2984.
Warsop & Hill, 3222.
Stevenson, Ree & Dunlop, 3248.
Patterson, 3396.
Ball (*François & Dubois*), 3611.
Jones, 3637.
Lake (*Mc Kean*), 3901.
Fenton, 4148.
Carr & Urwin, 4288.

Mining and quarrying (safety lamps, ventilation, draining, signals, tramways, &c.):
Sutcliffe & Clayton, 148.
Johnson (*Digney, Digney, Lartigue & Forest*), 247.
Bailey & Waddington, 293.
Pettifer, 395.
Jones, 451.
Brakell, 726.
Raworth, 869.
Landau, 1131.
Arnall, 1306.
Benson (*Cope & Maxwell*), 1387.
Haggett, 1461.
Williamson & Parsell, 1590.
Imray (*Fayol*), 1852.
Wirth (*Honigmann*), 1864.
Martin, 1953.
Jaynor, 2577.
Hurd & Simpson, 2594.
Brookes (*De Soignie*), 2730.
Roebuck & Lamb, 2863.
Moseley, 2969.
Gardner (*Gigodot*), 3053.
Stone, 3076.
Clough, 3460.
Haseltine (*Wyss & Studer*), 3487.
Hyde, Hyde & Aldis, 3761.
Edgerton, Hordley & Newton, 3772.
Gardner, 4243.

Mirrors. *See* "Looking-glasses."

Mitrailleuses. *See* "Fire-arms."

Mixing, mashing and stirring:
Bentley & Garth, 145.
Bodmer, 590.
Stone, 723.
Vassard, 819.
Barlow (*Galland*), 827.
Forbes, 835.
Oldroyd, Oldroyd, jun., Woodcock & Coulter, 898.
Miller, 925.
Roberts, 926.
Pumphrey, 936.
Clark, 1216.
Brakell, 1286.
Alsing, 1319.
Barker, 1321.
Carr, 1417.
Tinne, 1419.
Brown, 1528.
Lees & Faulkner, 1612.
Lish, 1621.
Clayton, 1775.
Radeke, 1877.
Clark (*Bocquet & Bénard*), 1884.
Milburn & Jackson, 2004.
Hatschek, 2042.
Robbins, 2116.
Simon, 2351.
Haseltine (*Lloyd*), 2311.
Young (*Ryle, jun.*), 2332.
Donisthorpe, Donisthorpe, Clarke, Snowden & Dearden, 2439.
Lord, 2541.
Hunt (*Reynoso*), 2582.
Walker, 2622.
Stone, 2678.
Freestone & Humphris, 2729.
Shorrock, 3332.
Clark (*Loiseau*), 3419

Mixing, &c.—*cont.*
Stevenson, 3474.
Brin, 3477.
Bradford, 3481.
Kingdon, 3596.
Clark, 3813.
Leigh, 3874.
Paget (*Bérenger*), 3953.
Walker, 4048.
Adair, 4076.
Ward, 4283.

Modules for measuring water. *See* "Meters."

Monuments:
Rowbotham & Richardson, 684.

Mooring or securing barges, &c.:
Garrard, 2090.

Mortar. *See* "Cement."

Mosaic veneers or tiles:
Lake (*Krause*), 944.
Hyatt, 3380.

Moths (protecting from). *See* "Insects."

Motions of suspended saloons, floors or platforms on board ship (controlling, &c.):
Bessemer, 1076.

Motive-power (air and gas). *See* "Air-engines."

Motive-power (electro-magnetic). *See* "Electro-magnetic engines."

Motive-power (from a chimney draught):
Crane, 3094.

Motive-power (from compressed carbonic acid):
Wirth (*Beins*), 3194.

Motive-power (from liquid gaseous pressure acting on annular casings):
Newall, 1220.

Motive-power (from the pitching and rolling of ships):
Atkin, 1361.
Clark (*De Boucherville*), 2583.

Motive-power (from the rise and fall of tides):
Johnson (*Picq*), 43.
Bousfield (*Guglielmini*), 3038.
Huxley, 3112.

Motive-power (from the rise and fall of waves). *See* "Water-wheels."

Motive-power (from the vapour of ether, bisulphide of carbon and other like volatile liquids):
Lake (*Wells*) 1922.
Spence (*Zündel*), 2210.

Motive-power (gunpowder). *See* "Air-engines."

Motive-power (mechanical):
Harrison & Conder, 33.
Barnett, 179.
Stanley, 1485.
Simon, 1848.
Zysel, 2182.
Johnson (*Côte*), 2486.
Shell, 2628.

Motive-power—*cont.*
Stone, 2677.
De Lorière, 2902.
Coldwell, 3870.
Johnson (*Carto*), 4147.

Motive-power (mercury):
Lüdeke, 1806.

Motive-power (oil). *See* "Oil-engines."

Motive-power (steam). *See* "Steam-engines."

Motive-power (water). *See* "Water-wheels."

Motive-power (wind). *See* "Air-engines."

Moulding cigars. *See* "Tobacco."

Moulding fuel:
King, 116.
Martin & Martin, 642.
Campbell, 656.
Fawcett, 705.
Stone, 723.
Vassard, 819.
Wadsworth, 841.
Hall, 971.
Maxted, 1115.
Forbes, 1191.
Flower, 1201.
Spartali, 1206.
Wolffram, 1245.
Barker, 1321.
Trumble, 1519.
Luke, 1771.
Radeke, 1877.
Clark (*Bocquet & Bénard*), 1884.
Girard, 2584.
Newton (*Couillard*), 2642.
Johnson (*Rattiger*), 3208.
Stone, 3387.
Clark (*Loiseau*), 3419.
Walker, 3432.
Bass, 3718.
Clark, 3813.
Leigh, 3874.
Page, 4020.
Livingstone, 4218.

Moulding metals. *See* "Metals (casting)."

Moulding sugar. *See* "Sugar."

Mouldings and architectural ornaments; moulding-plaster:
Whitburn, 48.
Bonneville (*Schenck & Hayek*), 310.
Rowbotham & Richardson, 684.
Smith (*Mabille*), 804.
Coddington (*De Witt & Fairman*), 1004.
Robbins, 2116.
Gaillon, 2414.
Hyatt, 3788.
Johnson (*Cottrell*), 4102.

Moulds for oil-cake. *See* "Oil-cake."

Mowing. *See* "Reaping."

Mucilaginous solutions (making):
Barker, 1321.

Muffs:
Marlin, 3825.

Mules. *See* "Spinning, twisting."

Music halls. *See* "Buildings."

Music (producing on glass):
Gedge (*Laujorrois*), 4195.

**Music stands, holders and stools:**
Whitburn, 48.
Turner, 3535.
Seward & Phillips, 3613.
Malone, 3811.

**Music (teaching).** *See* "Teaching."

**Music (turning over leaves of):**
Soul (*Roturier*), 101.
Bellairs, 1159.
Eyland & Warren, 3245.

**Musical instruments:**
Newton (*Wolff*), 28.
Whitburn, 48.
Allenby, 143.
Clark (*Broomhead*), 320.
Hamilton, 387.
Thorneloe, 402.
Shakespear, 655.
Burton, 972.
Farmer & Hamilton, 1008.
Tongue (*Kastner*), 1091.
De Laskarzewski & Noyes, 1470.
Woods, 1547.
Clark (*Freudentheil*), 1630.
Staight & Staight, 1964.
Coxhead, 2136.
Rahles & Mac Kenzie, 2562.
Hill, 2597.
Bassett, 2866.
Rousseau & Stevenot, 2938.
Clark (*Plass*), 3330.
Dawes, 3337.
Sèches, 3503.
Seward & Phillips, 3613.
Johnson (*Winans*), 3820.
Semple, 3861.
Hebert, 3932.
Skaife, Gillett & Bland, 4141.

**Muslin band.** *See* "Tape band."

**Mustard pots.** *See* "Cruet glasses."


## N.


**Nail extractors:**
Williams (*Capewell*), 64.
Lancaster, 3922.

**Nails; rivets; spikes; studs; tacks; brads:**
Palliser, 1213.
Pickup, 1811.
Sanders & Sanders, jun., 2139.
Whight (*Rogerson*), 2432.
Scattergood, 2561.
Rogers (*Mullholland*), 2945.
Grimshaw, 2999.
Grimshaw, 3099.
Bromhead, 3234.
Byron (*Arnold*), 3247.
Lake (*Blake*), 3470.
Lake (*Blake*), 3475.
Wilkinson (*Nichols*), 3500.
Elliot, 3612.
Mewis, 3703.
Haseltine (*National Horse Nail Co.*), 3737.
Chelot, 3897.
Coruforth, 4057.
Ashford, 4063.
Richards, 4068.

**Names (illuminating street and other).** *See* "Sign boards."

**Naphtha:**
Jones, 894.
Moseley, 916.

**Napping fabrics.** *See* "Finishing."

**Necklaces:**
Carron, 1296.

**Neck-ties; scarf rings:**
Pulvermacher, 1067.
Malcolm, 1401.
Jefferys, 1897.
Levi, 1962.
Hogg, 2067.
Henderson & Eley, 3851.
Picard, 4094.

**Needle threaders:**
Johnson (*Farmer*), 1107.
Bacon, jun., 1790.

**Needles; needle cases:**
Burgess, 307.
Clark (*Broomhead*), 320.
Cleaver, 685.
Brookes (*Wattinne & Roettger*), 1357.
Harding & Harding, 2499.
Bousfield (*Shedd*), 2641.
Yeomans, 3935.
Gedge (*Alminana & Sarkissian & Gigaraff*), 4121.
Roman, 4177.

**Nets and netting:**
Gilbee (*Procopé*), 564.
Symington, 1766.
Robbins, 2116.
Ducomet (*Bonamy*), 2377.
Payne & Ping, 3134.
Symington, 3157.
Hyatt, 3256.

**Neutral soap.** *See* "Soap."

**Nickel plating.** *See* "Coating metals."

**Night sight vanes for fire-arms.** *See* "Fire-arms (charging)."

**Nightlights:**
Webb, 728.
Letchford, 1835.

**Nippers.** *See* "Pliers."

**Nitrogen:**
Kenyon & Swindells, 4013.

**Nitrous oxide gas (administering):**
Coxeter, 302.

**Non-conducting compositions (mixing).** *See* "Mixing."

**Nose-bags:**
Holding, 3271.
Petty, 3749.

**Note-cases.** *See* "Bill-cases."

**Noxious gases and vapours (arresting and preventing):**
Target, 168.
Erskine & Denby, 192.
Osborne & Palmer, 198.
Nichols, 215.
Kolb & Allsop, 316.
Pilling & Harlow, 480.
Chantrell, 499.
Maquay, 511.
Scott, 570.
Hargreaves & Robinson, 680.
Haseltine (*Mc Carty, Olds & Mason*), 681.
Dean, 849.
Myers, 1077.
Williams, 1122.
Giles, 1366.
Scott, 1445.
Haggett, 1461.
Scott, 1509.
Brown, 1555.
Ronald & Farmer, 1676.
Green, 1885.
Weare, 1957.
Marley & Thompson, 2055.
Leigh, 2071.
Bousfield (*Mackinnon*), 2285.

**Noxious gases, &c.—cont.**
Fahlman, 2425.
Liotard, jun., 2491.
Richardson, 2535.
Main, 2544.
Rowe & Johnson, 2769.
Munts & Sharp, 2843.
Forrest & Hayes, 2907.
Lake (*Storer*), 3070.
Blacker, 3269.
Featherstonhaugh, 3239.
Metcalfe & Massingham, 3329.
Jaques, 3370.
Medlen, 3426.
Milnes, 3541.
Alexander, 3576.
Webb, 3748.
Head, 3827.
Green, 3833.
Lee, 3891.
Cockey & Cockey, 4026.
Akester, 4172.
Alleyn, 4256.

**Nursery pins.** *See* "Pins."

**Nursing apparatus:**
Nisbet, 2111.

**Nut-crackers:**
Haseltine (*Lindsay*), 4113.

**Nuts and washers:**
Haseltine (*Purdie*), 223.
Strange (*Cameron & Frier*), 321.
Grout, 463.
Sholl, 525.
Johnson (*Ostrander*), 557.
Worth, 753.
Alley, 1141.
Thackray, 1142.
Grover, 1230.
Harris, 1383.
Griffin (*Hickey*), 1398.
Liernur, Kops & Martignoni, 1648.
Sterling, 2023.
Macintosh, 2844.
Grimshaw, 2999.
Browne, 3118.
Dobson, 3192.
Bromhead, 3234.
Howell (*Richards*), 3274.
Loomis, 3342.
Fairbank (*Vanstone & Hollings*), 3440.
Potts, jun., 4061.
Alley & Handyside, 4085.

**Nuts (sorting).** *See* "Sifting."


## O.


**Obstetric apparatus.** *See* "Medical treatment of man."

**Oil-cake:**
Bonneville (*Martin*), 436.
Eskrett & Searle, 1391.
Lake (*McDonald*), 1702.
Eskrett & Searle, 1792.
Ayre, 3409.
Goulton, 4186.

**Oil-cans:**
Plessner, 180.
Revell, 3709.

**Oil-cloths:**
Larue, 172.
Clark (*Townsend*), 2198.

**Oil-engines:**
Tommasi, 696.

**Oil-gas engines.** *See* "Air engines."

**Oil-paints.** *See* "Paints."

Oiling fibres. *See* "Fibres (oiling)."

Oiling or lubricating; materials for oiling:
Johnson (*Pearl & Battles*), 18.
Glen, 176.
Milner, 196.
Prouse & Duke, 366.
Edwards & Taft, 373.
Lyne, 380.
Mewburn (*Dubreuil*), 410.
Fawcett, 471.
Milburn, 483.
Cockshott, 567.
Morgan-Brown (*Thomas*), 612.
Michaud, 629.
Hamblet & Davies, 780.
Holt, 876.
Newton, 1007.
Wood, 1023.
Spencer & Smith, 1045.
Lawson, 1102.
Pashley, 1263.
Bonneville (*Biennait*), 1348.
Petherick & Rock, 1364.
Carr, 1417
Haggrett, 1461.
Colls, 1469.
Burnett, 1491.
Botwood, 1615.
Morgan-Brown (*Gates & Gates*), 1634.
Wilson, 1695.
Johnson (*Palmcrants, Winborg & Unge*), 1739.
Lake (*Brewer*), 1769.
Hunt (*Glanding, Wilson & Johnson*), 1791.
Lake (*Whitney*), 1801.
Brooks, Harrison & Goodbehere, 1804.
Whitmore, 1871.
Higgins & Whitworth, 1874.
Brotherhood, 2003.
Clark (*Stacy*), 2012.
Payne, 2224.
Rome, 2250.
Bonneville (*Grüninger*), 2305.
Sutton, 2315.
Alley, 2409.
Wirth (*Kernaul*), 2494.
Tidcombe, jun., 2517.
Kirkman, 2636.
Gillespie, 2646.
Clarke & Turner, 2726.
Follows & Bate, 2836.
Walker, 2879.
Phipps, 2970.
Wirth (*Osenbrück*), 2991.
Cornelius, 3036.
Watts & Watts, 3069.
Lundy, 3108.
Alley, 3148.
Hahn (*Jacoby*), 3246.
Haseltine (*Hamilton*), 3258.
Hutchison, 3287.
Maass & Flos, 3389.
Trossin, 3401.
Pope, 3405.
Haseltine (*Wyss & Studer*), 3437.
Thomas (*Persos*), 3603.
Boyell, 3639.
Sutcliffe & Sutcliffe, 3679.
Hyatt, 3684.
Revell, 3709.
Collingridge, 3830.
Smith & Coventry, 3878.
Plessner, 3934.
Davis, 3995.
Palmer, 4054.
Morgan, 4061.
Browne (*Dreyfus*), 4072.

Oils (animal):
Thompson, 42.
Bentley & Garth, 145.
Cox & Cox, 214.
Imray, 325.
Hutchison, 3287.
Featherstonhaugh, 3289.
Shorrock, 3332.
Hess, 3692.
Smith (*Melville*), 3767.
Hyatt, 3788.
Wuth (*Forster*), 4286.

Oils from seeds; vegetable oils:
Bentley & Garth, 145.
Imray, 325.
Bonneville (*Martin*), 486.
Mc Donald, 1139.
Johnson (*David & Fichet*), 1222.
Eskrett & Searle, 1391.
Colls, 1469.
Mannini, 1536.
Lake (*McDonald*), 1702.
Eskrett & Searle, 1792.
Haseltine (*Lloyd*), 2311.
Granville & Johnson, 2540.
Freestone & Humphris, 2729.
Henderson, 2860.
Mackay, 3129.
Johnson (*David*), 3190.
Hutchison, 3287.
Shorrock, 3332.
Ayre, 3409.
Hughes (*Blythe*), 3437.
Hess, 3692.
Hyatt, 3788.
Bouju, 4033.
Goulton, 4186.

Oils of tar, mineral oils, hydrocarbons:
Thompson, 42.
Cox & Cox, 214.
Imray, 325.
Johnson (*Pagliari*), 405.
Barff (*Kidd*), 520.
Patison, 569.
Wright, 823.
Clark (*Challeton*), 945.
Gardner, 963.
Henderson, 1327.
Brown, 1555.
Casper (*Dezuarte & Farinaux*), 1636.
Hinks & Holland, 2047.
Wotherspoon & Foulis, 2391.
Robinson, 2404.
Meldrum, 2407.
Kennelly, 2813.
Marsden, 3018.
Kennelly, 3032.
Hutchison, 3287.
Muir, 3318.
Shorrock, 3332.
Medlen, 3426.
Mills (*Sim*), 3763.
Hyatt, 3788.
Collingridge, 3830.
Smith & Field, 3942.

Oils or spirits (reservoirs for storing):
Gray (*Bianchini*), 1430.

Omnibuses. *See* "Carriages."

Omphalic blisters. *See* "Medical treatment."

Opening boxes, cases, tins, &c.:
Elmslie, 211.
Paillard & Gourlan, 1818.
Icely, 3594.

Optical illusions:
Morris, 2163.
Edwards, 2888.
Mason, 3220.

Optical instruments:
Grey, 276.
Pritchard, 2290.
Van Tenac, 2347.
Cooke & Emary, 2445.
Cumine, 3102.
Luck, 3421.
Wirth (*Dauthendey*), 3842.
Souchard, 4105.

Oranges (sorting). *See* "Sifting."

Ordnance. *See* "Fire-arms."

Ore stampers. *See* "Grinding minerals."

Ores of metals (treating). *See* "Metals (smelting)."

Ornamenting surfaces and articles; making ornaments:
Whitburn, 48.
Redgrave & Wright, 223.
Platt, 389.
James, 456.
Lee, 493.
Newell, 514.
Gardner, 633.
Capreell, 760.
Lake (*Beck*), 795.
Brown (*Dodd*), 802.
Kilner & Friston, 1093.
Johnson (*Jeandron-Ferry*), 1293.
Marrian, 1929.
Hide, 2308.
Betts, 2611.
Martin, 2704.
Cunliffe, 2802.
Fuchy, 3044.
Bonnett, 3345.
James, 3359.
Hyatt, 3380.
Rhodes, 3517.
Dean, sen., 3587.
Renaudon, 3887.
Gedge (*Laujorrois*), 4195.

Orthopedy. *See* "Surgery."

Osier and other rods (peeling):
Bremerkamp, 61.

Ovens and kilns (cement, plaster and lime kilns; brick and pottery kilns; malt kilns):
Derham (*Morand*), 411.
Hunt (*Colfs-Heyne*), 425.
Cowan, 500.
Goreham, 665.
Smith, 759.
Smith (*Mabille*), 804.
Phillips, 821.
Wood, 901.
Robey, Banks & Forester (*De Bettignies, Bros.*), 970.
Bonner, 1265.
Nicklin & Frost, 1396.
Hunt (*Mendheim*), 1410.
Tooth & Tooth, jun., 1414.
Torr & Johnstone, 1452.
Minton, 1526.
Barrow & Barrow, 1548.
Skelton & Mobberley, 1647.
Cowan, 1665.
Cowdery, 1680.
Minton, 1709.
Ray (*Heilmann*), 1960.
Bodmer & Bodmer, 2026.
Swonnell, 2436.
Wirth (*Von Schlemmer*), 3294.
Pickwell, 3364.
Scott, 3505.
Beart, 3604.
Power, 4271.

Ovens and kilns (coke ovens, ovens for charring peat, &c.):
Boynton & Holmes, 98.
Williams, 268.
Jensen (*Erichsen & Maardt*), 602.
Clark (*Challeton*), 945.
Barclay, 990.
Jensen (*Erichsen & Maardt*), 1073.
Clark, 1216.
Wolffram, 1245.
Jobson, 1258.
Smith, 1478.
Marley & Thompson, 2055.
Grice, 2339.
Robinson, 2404.
Stone, 3143.
Clark (*Loiseau*), 3419.
Bustard, 3533.
Parker & Wade, 3868.
Walker, 4048.
Lord, 4269.

**Ovens (bakers' ovens, domestic ovens):**
Boes, 84.
Konn (*Lodighin*), 91.
Kininmonth, 102.
Lewis, 575.
Halmshaw, 586.
Pilkington, 669.
Hughes (*Grimm & Corvin*), 700.
Barraclough, 756.
Boes, 808.
Woods & De Malortie, 1006.
Skoines, 1086.
Newton & Dawson, 1176.
Redmayne, 1185.
Giles, 1368.
Booth, 1373.
Haggett, 1461.
Lake (*Zichermann*), 2357.
Barraclough, 2357.
Edwards, 2974.
Matterson, 3469.
Clark, 3521.
Peacock & Peacock, 3641.
Hyatt, 3684.
Pinney, 3903.
Clarke, Clarke & Harrold, 3924.
Whittle, 3983.
Adair, 4076.
Hutchin, 4117.
Lake (*Locke*), 4238.

**Ovens (tailors'):**
Warren, 3765.

**Overseaming.** *See* "Sewing."

**Overwinding in mines (preventing).** *See* "Breaks for machinery."

**Oxidation and incrustation (preventing and removing):**
Salmon, 147.
Bullock, 171.
Fairbairn & Beeley, 270.
Hatfull, 281.
Peacock, 364.
Rydill, 376.
Simon (*Büttner*), 412.
Nangle, 495.
Norris, 504.
Burfitt, 538.
Gercke, 548.
Hutchison & Bridges, 551.
Henderson (*Demailly*), 591.
Lee & Pringle, 594.
Körting, 626.
Hughes (*Grimm & Corvin*), 700.
Redman, 732.
Lake (*Cochrane*), 1021.
Lake (*Prall*), 1051.
Johnson (*Riot & Roux*), 1089.
Shaw & Hunter, 1145.
Johnson (*Holmes*), 1221.
Sieber, 1317.
Nolden, 1552.
Defty, 1602.
Cutter (*Willis*), 1646.
Gooder, 1674.
Roberts, 1700.
Robinson, 1708.
Botterill, Botterill, jun., Wolstenholme, 1744.
Curtis (*Mills*), 1924.
Scott, 1986.
Sterling, 2023.
Horner & Dobson, 2037.
Robbins, 2116.
Ray, 2132.
Payne, 2224.
Field, 2254.
Lake (*Brownell*), 2302.
Salmon, 2419.
Fisher, 2435.
Wilson, 2509.
Casper (*Farinaux*), 2602.
Sibert, 2612.
Johnson, 2643.
Brookes (*De Soignie*), 2730.
Théry, 2742.
Smedley, Bradbury & Hall, 2986.
Grimshaw, 2999.
Paxman 3024.

**Oxidation, &c.**—*cont.*
Sutcliffe, 3132.
Weil & Lyte, 3136.
Bromhead, 3234.
Hahn (*Jacoby*), 3246.
Byron (*Arnold*), 3247.
Haseltine (*Hamilton*), 3258.
Delalot, 3263.
Massey & Hill, 3313.
Harvey & Pryer, 3315.
Black, 3325.
Surmon, 3327.
Sanderson, Messrs., 3546.
Sinclair, 3693.
Vaughan (*Bernhard*), 3771.
Twibill, 3791.
Harrington, 3867.
Rahtjen, 3920.
Paget (*Bérenger*), 3953.
Barton, 3967.
Morgan, 4061.
Wilkinson, 4134.
Richardson, 4150.
Esplen, 4189.
Logan, 4273.

**Oxides:**
Boundy, 17.
Scott, 154.
Scott, 183.
Kuhlmann, 847.
Werdermann, 1934.
Wright, 2470.
Harcourt & Fison, 2685.
Freestone & Humphris, 2729.
Dixon (*Cobley*), 2981.

**Oxygen; oxygenising air:**
Harrison, 435.
Harrison, 528.
Johnson (*David & Fichet*), 1222.
Johnson (*David*), 3190.
Kenyon & Swindells, 4013.

**Ozone:**
Johnson (*David & Fichet*), 1222.
Johnson (*David*), 3190.


## P.


**Packing for engines, pumps, valves, &c.:**
Asbury, 139.
Nichols, 215.
Wilson, 241.
Sholl, 525.
Rydill, 691.
Lake (*Wilson*), 727.
Heaton & Giddings, 872.
Fish, 884.
Head, 923.
Lake (*West & Goodwin*), 933.
Haseltine (*Harwood & Newcomb*), 967.
Turner, 1011.
Lawson, 1102.
West, 1158.
Woodley, 1256.
Critchlow, 1351.
Black, 1367.
Harris, 1383.
Benson (*Cope & Maxwell*), 1387.
Casper (*Farinaux*), 1405.
De Negri, 1437.
Wotherspoon, 1600.
Wood, 1643.
Wilson, 1695.
Abel (*Westinghouse, jun.*), 1735.
Hunt (*Glanding, Wilson & Johnson*), 1791.
Martin, 1953.
Anderson & Harrison, 1965.
Greey, 2338.
Haseltine (*Eayrs & Stuart*), 2354.
Wotherspoon & Foulis, 2391.
Andrew, 2542.
Tongue (*Merrill*), 2560.
Kirkman, 2636.

**Packing for engines, &c.**—*cont.*
Watson & Pegler, 2637.
Clarke & Turner, 2726.
Macintosh, 2844.
Martin, 2990.
Turner (*Eighter*), 3043.
Wirth (*Beine*), 3194.
Hyatt, 3256.
Maass & Flos, 3389.
Pope, 3405.
Temple, 3429.
Bower & Bower, 3523.
Sutcliffe & Sutcliffe, 3679.
Hyatt, 4241.

**Packing into parcels, &c.:**
Prince (*Flinsch*), 446.
Bennett (*Collett*), 825.
Loveridge, 850.
Gedge (*Cousette*), 1418.
Buncher, 1533.
Stubbs, Messrs., 1613.
Hale, 2239.
Wotherspoon & Coey, 2575.
Haseltine (*Reynolds & Co.*), 2[illegible].
Coey, 2867.
Lilly, 2952.
Coey, 3570.
Clayton, 3808.
Noad, 3917.
Lake (*Moorey*), 4069.

**Packing or making bales.** *See* "Presses."

**Padding:**
Arnold, 2516.
Clarke & Donisthorpe, 3369.

**Paddle wheels.** *See* "Propelling ships."

**Pails; buckets:**
Tucker, 1527.
Lambert, 2549.

**Paints; painting:**
Stephens, 35.
Argall, 68.
Scott, 154.
Haseltine (*Meylert*), 213.
Boothroyd, 250.
Prince (*Flinsch*), 461.
Nangle, 495.
Noad, 539.
Rowbotham & Richardson, 634.
Haight, 966.
Bracewell & Pennett, 1117.
Tinne, 1419.
Tavenet, 1446.
Haggett, 1461.
Thompson, 1532.
Buncher, 1533.
Fitz-Gerald & Molloy, 2102.
Robbins, 2116.
Skoines, 2262.
Hunt, 2385.
Haseltine (*Reynolds & Co.*), 2[illegible].
Haseltine (*Lloyd*), 2761.
Cornelius, 3036.
Mackay, 3129.
Hyatt, 3256.
Owen, 3502.
Dean, sen., 3587.
Kingdon, 3598.
De Lungo (*Turdani*), 3633.
Hyatt, 3684.
Gardner & Orme, 4066.
Tongue (*Ciampanty*), 4101.
Wilkinson, 4134.

**Palisades.** *See* "Fences."

**Palliasses.** *See* "Upholstery."

**Pamphlets.** *See* "Books."

**Panels:**
Gardner, 633.
Hyatt, 3658.

**Pans (heating and evaporating).** *See* "Heating and evaporating."

Pans (sanitary and other portable):
Morris, 3595.

Pantiles. *See* "Bricks."

Paper, papier mâché, paper pulp (making):
Seitz, 197.
Halfpenny, 262.
Mc Dougall, 542.
Henderson (*Demailly*), 591.
Noble, 607.
Lee, 695.
Curtis (*Gould*), 769.
Houghton, 811.
Page, 863.
Jones, 894.
Bevan & Drew, 931.
Johnson (*Tito-Vignolo*), 1150.
Houghton, 1311.
Weigelin, 1338.
Morris, 1344.
Hunt (*Mejh & Voelter*), 1421.
Gray, 1466.
Mannini, 1530.
Harris, 1540.
Hodges, 1672.
Woodbury, 1954.
Abel (*Jourdeuil, Parisot & Guasco*), 2072.
Whitehead, 2187.
Simon, 2251.
Armitage, 2334.
Bonju, 2416.
Mathews, 2423.
Tidcombe, jun., 2517.
Wyllie, 2549.
Bevan, 2718.
Fyfe & Bowers, 2873.
Brewer (*Von Zahony*), 2912.
Aylmer, 3063.
Young, 3156.
Hyatt, 3256.
Bevan, 3333.
Weldon, 3655.
Hyatt, 3684.
Martin, 3751.
Howarth, Messrs., 3766.
Smith (*Melville*), 3767.
Blake, 3777.
Hyatt, 3788.
Smith (*Poole*), 3933.
Johnson (*De Meritens & Kresser*), 3937.
Hyatt, 4241.

Paper (application of):
Wright (*Aublet & Baudot*), 175.
Clark (*Levy*), 433.
Baah, 506.
Strauss, 784.
Vickers, 1105.
Eskrett & Searle, 1391.
Haggett, 1461.
Jensen (*Erichsen*), 1499.
Buncher, 1538.
Haseltine (*Howlett & Onderdonk*), 1622.
Wheeler & Jerome, 1649.
Eskrett & Searle, 1792.
Thompson, 2123.
Hale, 2239.
Speight, 2397.
Hanauer, 2745.
Harris, 2804.
Mackay, 2894.
Grange, 2950.
Robinson (*Howlett & Onderdonk*), 2973.
Newton (*Claude*), 3177.
Dean, sen., 3387.
Morgan-Brown (*Crowell*), 3677.
Henderson & Eley, 3851.
Griswold (*Clark*), 4140.
Ramsden, 4194.

Paper (cutting and ornamenting):
Leeming, Ray & Lynde, 46.
Mills & Monkhouse, 123.
Lake (*Beck*), 795.
Dunnett, 880.
Hughes, 1096.
Haseltine (*Howlett & Onderdonk*), 1622.
Mills & Monkhouse, 1971.



Paper (cutting, &c.)—*cont.*
Woodcock, 2652.
Lake (*Semple*), 2837.
Newton (*Mauger*), 3418.
Delavault, 3987.

Paper hangings:
Larue, 172.
Lake (*Beck*), 795.
Buncher, 1538.
Johnson (*Létang & Brissard*), 3711.

Paper ruling machines. *See* "Rulers."

Paper (waterproof):
Hyatt, 3684.
Clayton, 3808.

Parachutes. *See* "Aërial-machines."

Paraffin. *See* "Oils of tar."

Parasols. *See* "Umbrellas."

Parcels (joining pipes for the conveyance of):
Phillips, 4130.

Parchment:
Hyatt, 3684.
Clark (*D'Argy*), 4012.

Paring and slicing vegetables and fruit. *See* "Preserving food."

Parqueterie. *See* "Floors."

Paste spreaders. *See* "Gum."

Pasting and lining paper, &c.:
Clark (*Levy*), 433.
Morgan-Brown (*Crowell*), 3677.

Pastry. *See* "Confectionary."

Patterns and samples (cutting):
Trippe, 134.

Patterns or scollops (marking):
Chapman, 434.
Hughes, 1096.

Paving. *See* "Road making."

Pears (paring and slicing). *See* "Preserving food."

Peat; turf:
Boynton & Holmes, 98.
King, 116.
Hays & Hays, 437.
Barff (*Kidd*), 520.
Campbell, 656.
Fawcett, 705.
Cadett, 744.
Engledue, 745.
Henderson, 758.
Forbes, 835.
Harrison & Butler, 882.
Clark (*Challeton*), 945.
Hall, 971.
Clark (*Luxton*), 999.
Healy, 1069.
Thorp, 1173.
Clark, 1216.
Wolffram, 1245.
Brakell, 1286.
Barker, 1331.
Weigelin, 1338.
Smith, 1342.
Cadett, 1412.
Stenson & Cuff, 1466.
Rovedino, 1490.
Harrison & Page, 1514.
Trumble, 1519.
Jeyes & Jeyes, 1535.
Ashcroft, 1758.
Clark (*Bocquet & Bénard*), 1884.
Milburn & Jackson, 2004.
Bodmer & Bodmer, 2026.
Hunt, 2237.
Simpson & Simpson, 2361.
Hunt, 2365.

Peat, &c.—*cont.*
Johnson (*Gonzalez*), 2479.
Knab, 2482.
Robey, 2534.
Stephens, 2581.
Stone, 2678.
Hinton, 2714.
Barlow (*Noury & Masse*), 2771.
Kennelly, 2813.
Milburn & Jackson, 2855.
Henderson, 2860.
Penrose, 2868.
Kennelly, 3032.
Forbes, 3110.
Lake (*Tisdale*), 3117.
Stone, 3143.
Forbes, 3205.
Clark (*Martin*), 3353.
Stone, 3387.
Walker, 3432.
Lake (*Moro & Moro*), 3597.
Bass, 3718.
Lyttle, 3826.
Bookey, 3875.
Walker, 4048.
Lyttle, 4131.
Simpson & Simpson, 4184.
Livingstone, 4218.
Bodmer, 4284.

Pedestals. *See* "Columns."

Peeling osier rods. *See* "Osier rods."

Pegs; clothes-pegs:
Wells, 219.
Garrard, 2090.
Hunter (*Berry, Randolph & Eichbaum*), 2177.
Newton (*Tirpe*), 2302.

Pegs for boots and other articles made of leather:
Winslow, 1019.
Reed, 1062.

Pencils; crayons; pencil cases:
Johnson (*Reckendorfer*), 443.
Haseltine (*Campbell*), 779.
Wiley, 3730.
Dee, 3818.
Johnson (*Galland*), 4123.

Pendants. *See* "Jewellery."

Pens; penholders; pen boxes; finger guards and rests:
Gold, 1214.
Fenby, 1431.
Browne (*Berthoud*), 2331.
Hewitt, 2444.
Johnson, 2643.
Sage, 2667.
Wetzel (*Wischmeyer*), 3020.
Conradi, 3124.
Pomeroy, 3504.
Barlow & Barlow, jun., 3633.
Dee, 3818.
Perry & Wiley, 3946.
Johnson (*Galland*), 4123.

Pens for poultry, dogs, &c.:
Elwell, 3831.

Perambulators:
Ashton, 2539.
Wilkins, 3569.

Perforating leather. *See* "Punching."

Perforating paper:
Jensen (*Olsen*), 149.
Sampson, 1097.
Stanfield, 1906.
Gray, 2084.
Little, 2133.
Woodcock, 2652.
Edison, 2988.
Haseltine (*Averell*), 4031.

**Petticoats.** *See* "Dresses."

**Photograph frames:**
Whitburn, 48.

**Photographic monocular glasses:**
Gedge (*Dallemagne & Triboulet*), 1143.

**Photography:**
Abney, 615.
Long, Forsyth & Griffiths, 776.
Browne (*Despaquis*), 1190.
Stein, 1333.
Billups & Lee, 1341.
Billups & Lee, 1449.
Woodbury, 1954.
Willis, jun., 2011.
Frèret (*Godard*), 2079.
Greer, 2101.
Hodgson, 2122.
Bradley, 2316.
Van Tenac, 2347.
Banks, 2468.
Beckett, 2592.
Haseltine (*Critcherson*), 2911.
Barraud, 3106.
Sell, 3288.
Kennett, 3782.
Johnson (*Muhé*), 3938.

**Photometric measurements (obtaining):**
Bolton & Webber, 686.

**Pickers for looms.** *See* "Weaving (pickers)."

**Picking and screening coal.** *See* "Sifting."

**Pickling tin plates.** *See* "Coating metals."

**Picks or pickaxes:**
Reidy, 848.
Newton (*Lowman*), 1153.
Stone, 2706.

**Picture frames:**
Whitburn, 48.
Rowbotham & Richardson, 634.
Long, 3196.
Saunders, 4118.

**Pictures; portraits; prints; cleaning, mounting and suspending pictures:**
Abney, 615.
Billups & Lee, 1341.
Billups & Lee, 1449.
Woodbury, 1954.
Hodgson, 2122.
Edwards, 2763.
Smith, 2874.
Cumine, 3102.
Barraud, 3106.
Chevalier, 3137.
Johnson (*David*), 3190.
Clark (*Gaiffe*), 3449.

**Piecing or joining china, glass, &c.** *See* "Joining china."

**Piercing leather.** *See* "Punching."

**Piers:**
Paddison, 193.
Masourine, 207.
Milroy, 2228.

**Pigeon traps.** *See* "Traps."

**Pigs (hanging, cooling and cutting):**
Martin, 3494.

**Piles; sheet piling; pile driving:**
Sholl, 525.
Lyttle, 1434.
Garrard, 2090.
Hammond (*Justice*), 2686.
Eassie, 3510.

**Piling textile fabrics:**
Bonneville (*Warth*), 1572.
Lake (*Jobbins*), 3393.

**Pillars.** *See* "Columns."

**Pills.** *See* "Medicines."

**Pins; cravat pins:**
Wiley, 83.
Carron, 1295.
Harding & Harding, 2499.
Riviere, 3625.
Barnby, 3725.

**Pipe tongs:**
Huntoon (*Brown*), 3762.
Haseltine (*Lindsay*), 4113.

**Pipe wrenches.** *See* "Wrenches."

**Pipes, tubes and syphons (miscellaneous) making and casting:**
Kesterton, 53.
Kesterton, 54.
Pritchard, 106.
Lake (*Myers*), 127.
Dixon, 222.
Redgrave & Wright, 223.
Bonneville (*Schenck & Hayek*), 310.
Hamilton, 387.
Noad, 539.
Greenwood, Saville & Morton, 568.
Smith, 759.
Hamblet & Davies, 780.
Fish, 884.
Hounsell, 934.
Coddington (*De Witt & Fairman*), 1004.
Bonner, 1265.
Griffin (*Hickey*), 1398.
Newton (*Wilmot*), 1415.
Haggett, 1461.
Barrow & Barrow, 1548.
Wotherspoon, 1600.
Potel, 1752.
Hodson, 1754.
Heap, 1765.
Smith, 1803.
Livesey, 2016.
Garrett, 2054.
Bonneville (*Radde*), 2091.
Shepherd, 2356.
May, 2417.
Salmon, 2419.
Forster, 2734.
Fottrell, 3086.
Byron (*Arnold*), 3247.
Hyatt, 3256.
Pickwell, 3364.
Johnson (*Perroy*), 3377.
Hyatt, 3380.
Truman, 3488.
Haseltine (*Wood*), 3537.
Fenby, 3590.
Ingram, 3663.
Toussaint, 3666.
Willans, 3716.
Smith & Coventry, 3878.
Tasker (*Blakey*), 3980.
D'Humy, 4000.
Messenger, 4001.
Stanford, 4039.
Cornforth, 4057.
Steel, 4110.
Henderson, 4111.
Phillips, 4130.
Hodson, 4203.

**Pipes, tubes and syphons (miscellaneous) arranging and using:**
De Castro, 12.
Boes, 34.
Johnson (*Picq*), 43.
Whitwell, 86.
Salmon, 147.
Larue, 172.

**Pipes, &c.—*cont.***
Stevens, 216.
Hawkins, 230.
Newton (*Burdon*), 257.
Kolb & Allsop, 316.
Jones, 372.
Nangle, 495.
Tommasi, 696.
Hughes (*Grimm & Corvin*), 700.
Hoey, 712.
Johnson, 730.
Marsters, 737.
Fawcett, 763.
Smith (*Mabille*), 804.
Wright, 833.
Watson, 834.
Worroll, 836.
Barlow (*Galland*), 837.
Gratrix, 853.
Mayes, 858.
Jones, 894.
Hall, 971.
Cooper, 991.
Morris, 1033.
Lake (*Prall*), 1051.
Forrest, 1059.
Jobson, 1066.
Healy, 1069.
Attwood, 1071.
Tobin, 1081.
Lawrence, 1083.
Vickers, 1110.
Williams, 1122.
Barlow (*Galland*), 1129.
Landau, 1131.
Lister, 1140.
Cockey & Cockey, 1144.
Lacroix, 1152.
West, 1158.
Clark (*Nichols*), 1205.
Clark, 1216.
Clark (*Hillman*), 1227.
Woodley, 1256.
Whitwell, 1288.
Johnson (*Bergeron*), 1306.
Weigelin, 1338.
Mc Kay & Macgeorge, 1365.
Denley, 1381.
Haggett, 1461.
Smith, 1478.
Burnett, 1491.
Trumble, 1519.
Colls, 1553.
Barrow & Barrow, 1548.
Ciotti, 1550.
Nolden, 1552.
Stevenson, 1583.
Casper (*Desuarts & Parisau*), 1636.
Cowan, 1665.
Ronald & Farmer, 1676.
Abel (*Westinghouse, jun.*), 1728.
Crispin, 1797.
Howatson & Williams, 1812.
Metcalf, 1837.
Imray (*Payol*), 1852.
Jones, 1872.
Milner, 1997.
Sterling, 2022.
Hatschek, 2042.
Stafford, 2053.
Newton (*Babbitt*), 2271.
Petrie, jun., 2272.
Haseltine (*Lloyd*), 2311.
Wirth (*Reinemer & Stemler*), 2328.
Neubecker, 2500.
Rydill, 2624.
Clark (*Hédiard*), 2644.
Wirth (*Bichecode*), 2660.
Warren, 2731.
Hattersley, Messrs., & Ashley, 2821.
Worroll, 2908.
Marsden, 3018.
Liernur, 3168.
Hunter, 3279.
Imray (*Peyer*), 3350.
Haseltine (*Wyss & Studer*), 3367.
Lake (*Rourk*), 3553.
Crampton, 3687.
Benson (*Morris, Robinson & Mackenzie*), 3697.
Harley, 3755.
Hawkins, 3822.
Wirth (*André*), 3841.
Steel, 3890.
Fuller (*Ashley*), 3971.

Pipes, &c.—*cont.*
Fuller (*Ashley*), 3974.
Walker, 4048.
Todd, 4056.

Pipes and tubes for conveying gas and water:
Humber & Haworth, 662.
Tylor, 907.
Thomas, 1244.
Cort, 1545.
Richards, 1681.
Whittaker, 1798.
Smith, 1805.
Evans, 2142.
Nicholson, 2199.
Imray (*Gordon*), 2209.
Wheeler, 2503.
Forster, 2734.
Clark (*Pavy*), 2749.
Carter, 2755.
Fottrell, 3066.
Newton (*Galasso-Ketin*), 3308.
Harris, 3385.
Harris, 3386.
Tasker (*Blakey*), 3960.
D'Humy, 4000.
Messenger, 4001.
Phillips, 4130.

Pipes and tubes for steam-boilers:
Stroudley & Drummond, 6.
Smith (*De Chodzko*), 124.
Asbury, 139.
Kesterton, 253.
Imray (*Quimbel*), 309.
Erskine & Denby, 312.
Olley & Jackson, 338.
Bennett, 367.
Rydill, 376.
Simon (*Büttner*), 412.
Lake (*Shedd*), 473.
Lee & Pringle, 594.
Lake (*Proudfoot*), 634.
Lake (*Proudfoot*), 635.
Stanley, 654.
Rydill, 691.
Lancaster & Swindells, 714.
Spencer & Smith, 715.
Lake (*Knowles & Saunders*), 719.
Grimston, 792.
Taylor, 794.
Watson, 834.
Horner & Dobson, 862.
Holt, 876.
Head, 923.
Wright, 964.
Gardner, 985.
Cook, 996.
Moy & Shill, 1005.
Gigodot, 1026.
Heinemann, 1061.
Johnson (*Riot & Roux*), 1089.
Nield, 1109.
Shaw & Hunter, 1145.
Heyworth & Wilkinson, 1147.
Babcock & Wilcox, 1154.
Howard & Bousfield, 1237.
Crosland, 1249.
Willis, 1269.
Smith (*Meyn*), 1310.
Davey, 1315.
Black, 1367.
Black, 1368.
Dixon, 1400.
Thomas & Nightscales, 1454.
Oldham, jun., 1531.
Blondel & Bruneau, 1553.
Steen, 1628.
Wigzell & Pollit, 1627.
Botterill, Botterill, jun. & Wolstenholme, 1744.
Williams, 1773.
Smith, 1808.
Lee, 1829.
Shepherd, 1849.
Heyworth & Wilkinson, 1890.
Stanley, 1948.
Lamb, 1966.
Hacking, 1994.
Handyside, 2013.
Horner & Dobson, 2037.
Huxhes (*Fairbanks*), 2045.
Griffith, 2170.
Cramp, 2179.

Pipes, &c.—*cont.*
Mapplebeck, 2216.
Wright, 2243.
Lloyd, 2265.
Bonneville (*Grüninger*), 2305.
Haseltine (*Bayrs & Stuart*), 2354.
Gedge (*Préville*), 2396.
Johnson (*Sellers & Sellers*), 2461.
Garey & Turner, 2493.
Kesterton, 2497.
Sibert, 2612.
Tillott, 2615.
Rydill, 2624.
Housley, 2814.
Macintosh, 2844.
Arnold, 2887.
Sutcliffe, 2897.
Davies & Walker, 2914.
Newton (*Babbitt*), 2962.
Bourry, 3046.
Gardner (*Gigodot*), 3053.
Sanderson & Proctor, 3082.
Sutcliffe, 3132.
Haseltine (*Hamilton*), 3258.
Massey & Hill, 3313.
Pope, 3405.
Sanderson, Messrs., 3546.
Sinclair, 3693.
Muntz & Sharp, 3741.
Twibill, 3791.
Ramsden, 3796.
Galloway & Beckwith, 4036.
Todd, 4056.
Davies & Dawson, 4064.
Spartali, 4090.
Heyworth & Wilkinson, 4125.
Richardson, 4150.
Gillett, 4180.
Lloyd, 4235.
Clark (*Douglass*), 4247.

Pipes and tubes for steam-boilers (plugging or stopping):
Sisson, 1888.

Pipes (attaching service pipes to mains):
Cort, 1545.

Pipes (laying across rivers):
Johnson (*Ward*), 1001.

Pipes or hose:
Dodge (*McKay*), 865.
Morgan-Brown (*Richardson*), 1111.
Harrop, 1166.
Morris, 1344.
Harris, 1383.
Potel, 1752.
Morgan-Brown (*Dodge*), 1901.
Torrey, 2375.
Wheeler, 2503.
Lambert, 2549.
Turner (*Rightor*), 3043.
Thompson, 3188.
Thompson, 3221.
Dodge, 3425.
Harris, 3385.
Harris, 3386.
D'Humy, 4000.
Messenger, 4001.

Pipes (smoking). *See* "Tobacco."

Pistols. *See* "Fire-arms."

Pistons and piston packings:
Lake (*Krausse*), 80.
Wilson, 241.
Stead, 249.
Foster, 252.
Stirling, 374.
Robertson, 448.
Lake (*Blake*), 452.
Sholl, 525.
Edwards, 541.
Adams, 552.
Smith (*Giffard, Sublet & Armengaud, jeune*), 627.
Tommasi, 696.
Thomas (*Postle*), 709.
Heaton & Giddings, 872.

Pistons, &c.—*cont.*
Fish, 884.
Smith, 906.
Head, 923.
Lake (*West & Goodwin*), 983.
Haseltine (*Harwood & Newcomb*), 987.
Turner, 1011.
West, 1158.
Critchlow, 1351.
Petherick & Rock, 1364.
Harris, 1383.
Benson (*Cope & Maxwell*), 1387.
Casper (*Farinaux*), 1405.
Tinne, 1419.
Henderson, 1442.
Haggett, 1461.
Williamson & Parsell, 1595.
Wotherspoon, 1600.
Lake (*Carll & Cook*), 1688.
Darlington, 1734.
Picking & Hopkins, 1745.
Bousfield (*Eickemeyer*), 1794.
Martin, 1963.
Stebins, Rosenfield, Mayers & Leon, 2057.
Lake (*Lavraff*), 2080.
Wilson, 2120.
Cramp, 2180.
Payne, 2224.
Rome, 2250.
Chapman, 2281.
Bonneville (*Grüninger*), 2305.
Greey, 2338.
Brown, 2346.
Muller, 2471.
Tongue (*Merrill*), 2560.
Cohrs, 2630.
Kirkman, 2636.
Watson & Pegler, 2637.
Clarke & Turner, 2726.
Allen, 2785.
Haseltine (*Hoyt*), 2943.
Johnson (*Henry*), 2975.
Martin, 2990.
Rogers, 3158.
Haseltine (*Lidgerwood*), 3344.
Maass & Flos, 3389.
Trossin, 3401.
Pope, 3405.
Temple, 3429.
Walker, Messrs., 3501.
Bower & Bower, 3528.
Haseltine (*Henderson*), 3652.
Wilson, 3883.
Hutchison, 3894.
Lake (*Mc Kean*), 3901.
Johnson (*Schmid*), 4071.
Balmforth, Messrs., 4108.
Clarke & Walker, 4149.
Autier (*Falconnier*), 4202.

Pitch:
Clark (*Challaton*), 945.
Graham, 2245.

Pitchers. *See* "Jugs."

Planing. *See* "Cutting."

Plant protectors. *See* "Horticulture."

Plants and trees (application of):
Bremerkamp, 61.
Lee, 493.
Noble, 607.
Henry (*Collett & De Lavillasse*), 650.
Hunt & Hopwood, 783.
Elliot (*Stamp*), 788.
Houghton, 811.
Bevan & Drew, 931.
Fay (*Shedd*), 1101.
Johnson (*Tito-Vignolo*), 1150.
Chamas, Bouju & Bouju, 1208.
Gedge (*Garrigues & Fayet*), 1300.
Clark (*Digeon & Goldsmith*), 1331.
Mannini, 1530.
Abel (*Jourdeuil, Parisot & Guasco*), 2072.
Campana (*Pistoresi*), 2105.
Mills (*Lamb*), 2126.
Bouju, 2416.
Saldanha, Paes & Hopcraft, 2484.
Wyllie, 2519.

Plants and trees—*cont.*
Graham, 3114.
Young, 3156.
Bevan, 3333.
Hunt (*Reynoso*), 3717.
Bouju, 4033.
Collet & De Lavillasse, 4135.
Collet, De Lavillasse & Testud de Beauregard, 4166.

Plaster. *See* "Cement."

Plasters. *See* "Medical treatment."

Plates. *See* "Dishes."

Platforms:
Fullicks, 477.
Richards, 518.
Westwood, jun., 3560.

Plating metals. *See* "Coating metals."

Pleating and folding paper. *See* "Folding."

Pliers and nippers:
Lancaster, 3922.
Haseltine (*Lindsay*), 4113.

Ploughing, tilling and cultivating land:
Walpole, 125.
Barnett, 179.
Middlehurst & Middlehurst, 346.
Huxtable, 363.
Fisken, 497.
Brown & Johnstone, 524.
Marsland, 592.
Tasker, 746.
Corbett, 935.
Eustace, 943.
McDonald & Lenehan, 1113.
Cubitt, 1393.
Hanson & Hunter, 1520.
Griffin (*Remington*), 1594.
Bodman, 1720.
Savage, 1730.
Baker & Cox, 1731.
Lake (*Sprague*), 1770.
Johnson, 1896.
Gedge (*De Larret*), 1907.
Jack, 1981.
Randell & Randell, 1998.
Curror, 2808.
Balfour, 2014.
Williamson, 2068.
Garrard, 2090.
Pirie, 2110.
Moody, 2175.
Zysel, 2182.
Eustace, Kennan & Kennan, 2230.
Wilson, 2447.
West, 2554.
Ransome, 2659.
Lake (*Parvin & Overman*), 2758.
Jurgenson (*Ingermann*), 2972.
Fisken, 3262.
Green, 3579.
Mills (*Burgess*), 3589.
Knight, 3797.
Wood, 3821.
Chambon, 3926.
Greig & Burton, 3940.

Ploughs (peat). *See* "Cutting peat."

Plugging boats. *See* "Shipbuilding."

Plugging tubes, &c. *See* "Tube expanders and stoppers."

Plumbago:
Skoines, 2262.

Pneumatic hammers. *See* "Hammers."

Pneumatic telegraphs. *See* "Telegraphs."

Pneumatic tubes for transmitting despatches. *See* "Despatches."

Pocket books. *See* "Books."

Polishes (liquid):
Chevalier, 3137.
Birch & Mc Giffert (*Birch*), 3390.

Polishing; polishing powders. *See* "Grinding, polishing."

Polishing rice. *See* "Hulling."

Polishing thread. *See* "Finishing."

Polling stations. *See* "Voting."

Pontoons:
McClean, 41.
Sowerbutts, 100.
Napier, 246.
Clark, 611.
Lawrie, 1093.
Snoulten & Hurst, 3217.
Askew & Reynolds, 3403.
Egerton, 3936.
Studer, 4062.

Porphyry:
Brasseur & Wogler, 720.

Porters (rope). *See* "Ploughing."

Portfolios:
Hathaway, 3140.

Portmanteaus:
Drew, 929.
Haddan (*Fairman*), 1157.
Lee, 1870.
Cunliffe, 2802.
Mohr, 2968.

Posts and poles:
Kesterton, 54.
Lee & Rogers, 190.
Welch, 778.
Lyttle, 791.
Coddington (*De Witt & Fairman*), 1004.
Lyttle, 1434.
Crispin, 1797.
Garrard, 2090.
Brown, 2156.
Mewburn (*Hatzfeld*), 2411.
Leech (*Malpas*), 2567.
Cunliffe, 2802.
Dunk, 3436.
Johnson (*Cottrell*), 4102.

Potash. *See* "Alkalies."

Potato drills. *See* "Sowing."

Potatoes, turnips and other roots (digging, dressing and gathering):
Middlehurst & Middlehurst, 346.
Corbett, 935.
Ross, 2148.
Parkes & Parkes, 3691.
Hollingworth, 4250.

Potatoes (paring and slicing). *See* "Preserving food."

Pots (melting). *See* "Crucibles."

Pots or jars. *See* "Jars."

Pottery. *See* "Earthenware."

Pouches:
Pilon, 637.
Henson, 1580.
Macintosh, 2195.
Macintosh, 2314.

Poultices (applying). *See* "Medical treatment of man."

Powders (folding papers to contain). *See* "Folding."

Powders (preserving):
Lake (*Moorey*), 4069.

Powders (sifting). *See* "Sifting."

Power exerted by presses (ascertaining):
Bonneville (*Martin*), 496.

Power indicators. *See* "Governors."

Power looms. *See* "Weaving."

Precious stones. *See* "Gems."

Preserving and preparing articles of food:
Elmslie, 211.
Henley, 212.
Clark, 286.
Huch, 288.
Lake (*Martin & Beath*), 296.
Schlesinger (*Dixon*), 464.
Hutchings, 588.
Clark (*Margueritte*), 682.
Thomas (*Postle*), 709.
Metge & Vuibert, 710.
Bennett (*Collett*), 825.
Acklom, 890.
McEwen, 915.
Clark (*Delrieu, Pernoud & C.*), 1370.
Clark (*Howe*), 1428.
Clark, 1761.
Scollay, 1815.
Paillard & Gourlan, 1818.
Rust & Nicholls, 1873.
Kingan (*Kingan*), 2063.
Spurge (*Spurge*), 2099.
Lake (*Jones & Cooley*), 2229.
Thomas, 2480.
Follows & Bate, 2528.
Wotherspoon & Coey, 2575.
Hunt (*Reynoso*), 2582.
Coleman, 2585.
Petrie, 2658.
Coey, 2867.
Francis & Addiscott, 3051.
McDonnell & McDonnell, 3228.
Clark, 3442.
Brin, 3477.
Clark, 3521.
Hunt, 3524.
Coey, 3570.
Phibbs, 3585.
Icely, 3594.
Money, 3643.
Clark (*Borden & Borden*), 3673.
Clark (*Borden & Borden*), 3674.
Harrison, 3760.
Sicard, 3839.
Lindemann, 3871.
Nicols & Simons, 3884.
Koch, 4063.
Lake (*Moorey*), 4069.
Lake (*Roudebush*), 4269.
Henry (*Peltier & Paillard*), 4327.
Hunt (*Reynoso*), 4390.

Preserving beer. *See* "Brewing."

Preserving bones. *See* "Bone."

Preserving corpses. *See* "Corpses."

Preserving electric telegraph cables or ropes from decay:
Rowett, 2077.
Rowett, 4079.

Preserving ferns, grasses, lichens, mosses and other plants:
Lee, 403.

**Preserving from and preventing damp and mildew:**
Johnson (*Masson*), 406.
Mendel, 1272.
Morris, 1344.
Shand, 1993.
Johnston, 2229.
Hide, 2508.
Speight, 2397.
Granville & Johnson, 2540.
Stone, 2915.
Coates, 3686.

**Preserving gutta-percha or india-rubber articles or fabrics:**
Turner (*Righter*), 3043.

**Preserving hides and skins:**
Goulstone, 3768.

**Preserving metals:**
Nangle, 495.
Burfitt, 538.
Noad, 539.
Newton, 1007.
Scott, 1986.
Sterling, 2022.
Johnson, 2643.
Rahtjen, 3920.

**Preserving stone and brickwork:**
Plunkett, 1789.

**Preserving textile fabrics and yarns:**
Torrey, 2375.
Mills (*Sim*), 3763.
Lindemann, 3871.

**Preserving wood from insects, &c.; seasoning wood:**
Nangle, 495.
Fremlin, 640.
Fremlin, 1010.
Morris, 1344.
Hockley, 1382.
Johnson (*Damien & Kister*), 1390.
Lyttle, 1484.
Plunkett, 1789.
Brown, 2156.
Mewburn (*Hatzfeld*), 2411.
Macomber, 2475.
Leech (*Malpas*), 2567.
Jones, 3037.
Dunk, 3436.
Hughes (*Blythe*), 3437.
Weatherby, 3975.
Pignel, 4176.
Clark, 4283.

**Presses for baling goods, cotton, &c.; hydraulic, lifting and screw presses:**
Strange (*Cameron & Frier*), 381.
Bonneville (*Martin*), 486.
Ritchie, 584.
Tommasi, 696.
Strange (*Cameron & Frier*), 904.
Townsend (*Michel*), 1050.
Bonneville (*Martin*), 1148.
Clark (*Taylor*), 1241.
Burnett, 1494.
Stiff, 1564.
Cutter (*Willis*), 1646.
Lake (*Drake*), 1714.
Picking & Hopkins, 1745.
Ashcroft, 1758.
Ashcroft, 1760.
Newton (*Beard*), 1882.
Powler, 2137.
Easton, Pole & Whichoord, 2149.
Walker, 2456.
Clark & Standfield, 2496.
Jones, 2621.
Boomer, 3003.
Cooke, 3349.
Byron (*Arnold*), 3365.
Mc Nabb, 3415.
Wilson, 3883.
Norbury, 4015.
Lake (*Jordan*), 4208.

**Presses for printing, marking, stamping and embossing:**
Newton (*Bingham, Bingham, Van Allen & Stone*), 608.
Dunnett, 880.
Hughes, 1096.
Gough, 2106.
Richmond, Messrs., 2146.
Lake (*Crossley*), 2292.
Friedlaender (*Moeller*), 2340.
Johnson, Johnson & Pabst, 2877.
Haseltine (*Wyss & Studer*), 3487.
Harrild (*Gordon*), 3738.
Fuller (*Ashley*), 3973.
Fuller (*Ashley*), 3974.
Hunt (*Swain & Todd*), 4230.

**Presses (power):**
Mills (*Stiles*), 3210.

**Pressing or compressing fuel, peat, clay, bricks, gunpowder, &c.:**
King, 116.
Fawcett, 471.
Bodmer, 590.
Fawcett, 765.
Stone, 723.
Cadett, 744.
Henderson, 758.
Forbes, 835.
Harrison & Butler, 882.
Hall, 971.
Martin, 1070.
Shaw, 1377.
Stenson & Cuff, 1466.
Trumble, 1519.
Luke, 1771.
Wade & Cherry, 1781.
Stubbs, 1814.
Mackie & Faure, 1830.
Radeke, 1877.
Clark (*Bocquet & Bénard*), 1884.
Stephens, 2581.
Girard, 2584.
Walker, 2622.
Newton (*Couillard*), 2642.
Gillespie, 2646.
Hinton, 2714.
Barlow (*Noury & Masse*), 2771.
Johnson (*Payne*), 2798.
Milburn & Jackson, 2855.
Henderson, 2860.
Hodson, 2923.
Lake (*Tiedale*), 3117.
Haseltine (*Du Pont & Du Pont*), 3273.
Johnson (*Malo & Robin*), 3275.
Woolley & Padgett, 3348.
Murray, 3366.
Stone, 3387.
Ayre, 3409.
Walker, 3432.
Lake (*Moro & Moro*), 3597.
Bass, 3718.
Clark, 3813.
Palmer & Dixon, 3866.
Renaudon, 3887.
Fawcett, 4045.
Walker, 4048.
Adair, 4076.
Haycraft, 4200.
Livingstone, 4218.

**Pressing or compressing miscellaneous articles; applying pressure:**
Henley, 212.
Clark (*Levy*), 433.
Haddan (*Fairman*), 1157.
Rendel, 1425.
Haggett, 1461.
Newall, 1741.
Jones, 1828.
Johnson (*Sellers & Sellers*), 2060.
Lake (*Lacroff*), 2080.
Saldanha, Paes & Hopcroft, 2484.
Harding & Harding, 2499.
Coley, Robson & Price, 2505.
Andrew, 2542.
Hunt (*Reynoso*), 2782.
Moline & Stock, 2852.
Young, 3156.
Ayre, [illegible].

**Pressing, &c.—*cont.***
Brin, 3477.
Clark, 3521.
Hyatt, 3788.

**Pressing or shaping articles by pressure:**
Wilson (*Eickemeyer*), 76.
Wilson, 239.
Neill, 377.
Newell, 514.
Stocker, 702.
Hughes (*Blythe*), 3437.
Holland (*Bois*), 3547.
Parsons, 3746.

**Pressure gauges.** *See* "Gauges."

**Pressure of fluids (regulating the).** *See* "Valves."

**Printers' type correcting tools:**
Shaw, 1298.

**Printing earthenware, china and glass:**
Smith, 755.
Klüh, 1473.
Frèret (*Godard*), 2079.
Dean, sen., 3587.

**Printing leather:**
Larue, 172.

**Printing metals; transferring printed matter to metal plates:**
Smith, 755.
Hughes, 1096.
Klüh, 1473.
Bradley, 2316.
George, 3436.
Dean, sen., 3587.

**Printing oil-cloth:**
Larue, 172.
Clark (*Townsend*), 2190.

**Printing or stamping in relief.** *See* "Embossing."

**Printing paper; stereotyping; composing and distributing type:**
Whitburn, 48.
Mills & Monkhouse, 123.
Larue, 172.
Cumming, 267.
Duncan & Wilson, 333.
Parker, 535.
Noad, 539.
Newton (*Bingham, Bingham, Van Allen & Stone*), 608.
Abney, 615.
Densmore & Farnham, 668.
Smith, 755.
Capreell, 760.
Simon (*Bullock Printing Machine Co.*), 958.
Gough, 995.
Hughes, 1096.
Sampson, 1097.
Shaw, 1298.
Patrick & Tracy, 1337.
Payne, 1691.
Black, 1876.
Woodbury, 1954.
Mills & Monkhouse, 1971.
Clinch, 2002.
Willis, jun., 2011.
Gray, 2064.
Gough, 2106.
Richmond, Messrs., 2146.
Friedlaender, 2295.
Bradley, 2316.
Friedlaender (*Moeller*), 2340.
Macrone & Mackenzie, 2390.
Mercer, 2459.
Banks, 2468.
Moore & Le Moussu, 2474.
Cumming, 2538.
Johnson, Johnson & Pabst, 2877
Haseltine (*Whitney*), 3064.
Gray, 3097.

**Printing paper, &c.—*cont.***

Mackay, 3129.
Dawson & Dawson, 3152.
Wilson, 3237.
Gray & Gray, 3292.
Clark (*Gaiffe*), 3449.
Haseltine (*Wyss & Studer*), 3487.
Kingdon, 3598.
Saunders, 3602.
Morgan-Brown (*Crowell*), 3677.
Hyatt, 3684.
Johnson (*Létang & Brissard*), 3711.
Harrild (*Gordon*), 3738.
Tickle, 3806.
Smith & Fountain, 3809.
Mackie, 3852.
Monkhouse, 3918.
Fuller (*Ashley*), 3973.
Fuller (*Ashley*), 3974.
Bartlett, 4145.
Thomas (*Persoz & Jeannolle*), 4196.
Hunt (*Swain & Todd*), 4280.

**Printing papier mâché:**

Whitburn, 48.

**Printing stone:**

Smith, 755.

**Printing telegraphs.** *See* "Telegraphic printing."

**Printing wood and veneers:**

Whitburn, 48.
Steinhoff (*Schmidt*), 88.
Smith, 755.
Klüh, 1473.
Willis, jun., 2011.
Dean, sen., 3587.

**Printing woven and other fabrics and yarns:**

Stroudley & Drummond, 6.
Aitken, 49.
Larue, 172.
Hadwen, 417.
James, 456.
Smith, 755.
Hunt & Hopwood, 783.
Hughes, 1096.
Malcolm, 1401.
Clegg, 1577.
Hodges, 1672.
Nisbet, 2111.
Clark (*Townsend*), 2190.
Lake (*Crossley*), 2292.
Lake (*Crossley*), 2294.
Lake (*Lorimer*), 2358.
Banks, 2468.
Mac Lean, 2933.
Whiston, 3049.
Whiston, 3121.
Johnson (*Létang & Brissard*), 3711.
Smith (*Poole*), 3933.
Birch, 4234.
Wuth (*Forster*), 4286.

**Printing-colours.** *See* "Dyes."

**Prison doors (fastening and unfastening).** *See* "Doors."

**Projectiles.** *See* "Shot."

**Propelling aërial machines.** *See* "Aërial machines."

**Propelling carriages; locomotion on land:**

Harrison & Conder, 32.
Salmon, 147.
Barnett, 179.
Clark (*Avery*), 189.
Wilson, 241.
Fletcher, 457.
Tommasi, 696.
Sadler, 883.
Smith, 906.
D'Arros, 1000.
Grange, 1032.
Todd, 1389.
Stanley, 1485.
Mills, 1607.

**Propelling carriages, &c.—*cont.***

Simon, 1848.
Johnson, 1896.
Wirth (*Sigl*), 1978.
Handyside, 2013.
Gilbert, 2029.
Zysel, 2182.
Nicholl, 2394.
Aytoun, 2559.
West, 2654.
Anderson, 2919.
Clark (*Speer*), 2993.
Leveaux, 3123.
Anderson, 3163.
Boyman, 3515.
Lake (*Bourk*), 3553.
Spill, 3650.
Johnson (*Agudio & Cail & Co.*), 3724.
Hunt, 3790.
Tamet (*Gombert*), 3854.
Wirth (*Sigl*), 4026.

**Propelling machinery (feed mechanism):**

Craven, 22.
Rydill, 82.
Boynton & Holmes, 98.
Batley, 242.
Cumming, 267.
Tester, 299.
Leach, 357.
Edwards & Taft, 373.
Duncan & Wilson, 383.
Chappell & Charlsworth, 555.
Smyth, 609.
Henry (*Pinel & Lecœur*), 651.
Greenwood (*Payne*), 666.
Dunnett, 880.
Suckling, 918.
Melhuish, 946.
Smith, Stake, Tolson, Firth & Bradley, 951.
Simon (*Bullock Printing Machine Co.*), 958.
Clark (*Luxton*), 999.
Whitley, Hoyle & Haigh, 1016.
Williams (*Ayres*), 1024.
Allcock, 1038.
Reed, 1052.
Morgan-Brown (*Richardson*), 1111.
Darlington, 1168.
Morgan-Brown (*Weed*), 1218.
Taylor, 1266.
Keen, 1296.
Patrick & Tracy, 1337.
Shaw, 1377.
Ward, 1386.
Fenby, 1431.
Newton (*Covert*), 1541.
Acton & Mustard, 1635.
Donald & Atkey, 1655.
Donald & Atkey, 1696.
Tatham, 1908.
Lake (*Brock*), 1930.
Clark (*Stacy*), 2012.
Lake (*Sedgwick*), 2049.
Gough, 2106.
King, 2109.
Mitchell & Jordinson, 2173.
Curtis (*Ross*), 2238.
Gedge (*Cornely*), 2395.
Phelps, 2430.
Mercer, 2459.
Mills (*Bolette*), 2477.
Harding & Harding, 2490.
Sault, 2504.
Cumming, 2538.
Turner, 2653.
Hopkins, 2690.
Goodall, 2741.
Cumming, 2765.
Westley & Westley, 2849.
Walker, 2879.
Mills (*Knous*), 2880.
Hitchman, 2925.
Johnson (*Pitts, Aldrich & Marble*), 2982.
Shakespear & Illston, 3015.
Turner (*Webster & Webster*), 3021.
Deshayes, 3073.
Grimshaw, 3099.
Lake (*Morrell*), 3104.
Lowry & Gibson, 3261.
Mc Gieshan, 3465.

**Propelling machinery—*cont.***

Lake (*Blake*), 3478.
Holland (*Boin*), 3547.
Hunt (*Howes*), 3556.
McMillan, 3600.
Moreau, 3614.
Rogers, 3645.
Pitcher, 3656.
Jensen (*Jespersen*), 3687.
Tatham, 3693.
Weed, 3880.
Haseltine (*National Horse Nail Co.*), 3757.
Spencer, 3757.
Pickup & Carter, 3881.
Cunningham, 3962.
Fuller (*Ashley*), 3974.
Gedge (*Cornely*), 3989.
Cornforth, 4057.
Ashford, 4063.
Browne (*Durand & Duhorgel*), 4080.
Worssam, 4206.
Brewer (*Appleton*), 4232.
Wade (*Wade*), 4272.
Hunt (*Swain & Todd*), 4280.

**Propelling machinery (gauges, guides and traversers);**

Law & Law, 71.
Haseltine (*Perkins*), 123.
Wattles, 166.
Hale & Matthews, 264.
Lake (*Barton*), 540.
Wise (*McFulkries*), 725.
Clark (*Carpenter*), 1699.
Russell (*Bouillon*), 2969.
Stubbs & Corrigan, 2301.
Curtis (*Ross*), 2233.
Singleton, 2344.
Bishop (*Hall*), 2555.
Harris, 2804.
Horsman, 2853.
Walker, 2879.
Brown, 3439.
Tongue (*Vigour*), 3520.
Moreau, 3614.
Sylvester, 3841.
Russell (*Bouillon*), 3976.
Sylvester, 4155.
Birch, 4234.
Singleton, 4244.
Lake (*Rhode Island Horse Shoe Co.*), 4263.

**Propelling or driving machinery; transmitting power and motion:**

Harrison & Conder, 32.
Johnson (*Picq*), 48.
Carmichael, 72.
Barnett, 179.
Clark (*Avery*), 189.
Backus, Sawyer & Lerych, 217.
Lake (*Blake*), 227.
Haseltine (*Dean*), 259.
Brotherhood, 287.
Gedge (*Michaleé*), 403.
Newton (*Kirkham*), 444.
Richards, 518.
Sholl, 535.
Edwards, 541.
Gabriel, 622.
Mercer & Worthington, 647.
Bickerton & Bickerton, 746.
Rigby, 879.
Smith, 906.
Matthews, 947.
Weston, 969.
Hull, 994.
Wain, 1058.
Heinemann, 1061.
Attwood, 1071.
Wise (*Greindl*), 1282.
West, 1255.
Leach, 1281.
Lake (*Mooney & Comstock*), 1353.
Chisholm, 1316.
Shaw, 1334.
Shaw, 1377.
Fenby, 1431.
Morgan-Brown (*Tossill*), 1442.
McNabb, 1494.
Strange & Cornish, 1539.

**Propelling machinery, &c.—*cont.***
Henderson (*Demailly & Bruneaux*), 1644.
Mirrlees (*Weston*), 1678.
Finnegan, 1727.
Simon, 1848.
Wirth (*Honigmann*), 1864.
Whitmore, 1871.
Johnson, 1896.
Dargue, 2036.
Halpin & Alliott, 2039.
Herrick, 2185.
Carter, 2223.
Boyd & Boyd, 2226.
Haseltine (*Roes*), 2284.
Wilkinson & Elce, 2301.
Wanzer (*Hall*), 2367.
Bouju, 2416.
Harding & Harding, 2499.
Turner, 2533.
Richmond, 2551.
Tongue (*Merrill*), 2558.
Rintoul, 2664.
Newton (*Ashe*), 2736.
Weir, 2738.
Cumming, 2765.
Osbourn, 2823.
Walker, 2879.
De Lorière, 2902.
Weston, 3023.
Moore & Courtenay, 3078.
Harrison, 3183.
Robertson, Orchar, Muir & Mc Ilwham, 3427.
Earl of Caithness, 3433.
Wilson, 3531.
Hayes, 3534.
Moreau, 3614.
Hopkins, 3653.
Mc Farlane, 3844.
Baerlein, 4014.
Lancaster, 4037.
Fawcett, 4045.
Browne (*Durand & Duborget*), 4080.
Glover, 4115.
Colborne & Alcock, 4127.
Brewer (*Appleton*), 4232.

**Propelling ships; locomotion on water:**
Hughes (*Van Loo-Wauters*), 63.
Turton, 169.
Barnett, 179.
Browne, 277.
Brotherhood, 287.
Mills (*Cathcart & Negley*), 431.
King, Messrs., 468.
Haseltine (*Dodge*), 516.
Carmichael, 589.
Aston, 598.
Tommasi, 696.
Smithdale, 851.
Smith, 906.
Lister, 1140.
Morrison, 1163.
Wilson, 1289.
Atkin, 1361.
Henderson, 1442.
Haggett, 1461.
Stevenson, 1583.
Henderson (*Demailly & Bruneaux*), 1644.
Pattison, 1650.
Barrett, 1718.
Vacherot, 1824.
Barrow, 2154.
Newton (*Babbitt*) 2271.
Mennons (*De Telescheff*), 2310.
Varley & Furness, 2324.
Weatherdon, Colborne & Barrington, 2462.
Jones, 2515.
Pendred, 2532.
Bazin, 2552.
Clark (*De Boucherville*), 2583.
Clark (*Hédiard*), 2644.
Harris (*Patterson*), 2645.
Wise (*Eccles & Eccles, jun.*), 2661.
Newton (*Ashe*), 2736.
Brachigny & Deschamps, fils, 2782.
Clark (*Boys*), 2807.
De Lorière, 2902.
Bourget, 2935.
Spartali, 2967.

**Propelling ships, &c.—*cont.***
Jones, 2995.
Moore & Courtenay, 3078.
Thomason, 3195.
Spartali, 3197.
Byron (*Arnold*), 3247.
Howden, 3278.
Harrington, 3341.
Byron (*Arnold*), 3365.
Osborn & Alley, 3379.
Martin, 3444.
Boyman, 3515.
Hayes, 3534.
Boulton, 3536.
Thornycroft, 3551.
Lake (*Rourk*), 3553.
Thomas, 3596.
Smith, 3735.
Griffiths, 3817.
Williams, 3856.
Southwood & Mathews, 4002.
Purves, 4146.

**Pulleys; pulley blocks; riggers:**
Cooper, 16.
Hartley, 81.
Newton (*Goodrich, Hillman & Goodrich*), 90.
Morgan-Brown (*Thomas*), 612.
Densmore & Farnham, 668.
Thomson, 885.
Spencer, 893.
Harris, 942.
Weston, 960.
Hughes (*Buckley & Sawyer*), 1017.
Wain, 1058.
Hewitt & Goff, 1068.
Dunn, 1350.
Smith, 1376.
Weston, 1379.
Berthon, 1384.
Johnson (*Damien & Kister*), 1390.
Pearson, 1416.
Fenby, 1451.
Mirrlees (*Weston*), 1678.
Lake (*Whitney*), 1801.
Smith, 1879.
Jenkin & Ricketts, 1886.
Mathers, 2061.
Davies, 2345.
Cameron & Hastie, 2613.
Paul, 2651.
Mills (*Charlton*), 2810.
Wirth (*Osenbrück*), 2991.
Weston, 3473.
Floyd, 3529.
Hunt, 3790.
Smith & Coventry, 3878.
Wirth (*Sigl*), 4026.
Lancaster, 4037.

**Pulp for making paper.** *See* "Paper."

**Pulverising soil.** *See* "Ploughing."

**Pumps; raising and pumping water and other liquids:**
Holman, 136.
Newton (*Burdon*), 257.
Brotherhood, 287.
Dennis, 301.
Robertson, 448.
Fletcher, 457.
Edwards, 541.
Jackson, 595.
Brakell, 726.
Swan, 789.
Smith, 906.
Lake (*West & Goodwin*), 933.
Haseltine (*Harwood & Newcomb*), 967.
Forrest, 1059.
West, 1158.
Clark (*Nichols*), 1205.
Wise (*Greindl*), 1252.
Arnall, 1306.
Benson (*Cope & Maxwell*), 1387.
Casper (*Farinaux*), 1406.
Tinne, 1419.
Hülsenberg, 1441.
Henderson, 1442.
Thomas & Nightscales, 1454.

**Pumps, &c.—*cont.***
Ciotti, 1550.
Williamson & Parsell, 1596.
Wotherspoon, 1600.
Wood, 1643.
Lake (*Carll & Cook*), 1688.
Keen & Dence, 1732.
Picking & Hopkins, 1745.
Ashcroft, 1758.
Wood & Clarke (*Harrison*), 1772.
Bousfield (*Eickemeyer*), 1794.
Newton (*Piatti & De Mutrécy*), 1834.
Wirth (*Honigmann*), 1864.
Martin, 1953.
Anderson & Harrison, 1985.
Brotherhood, 2003.
Colebrook, 2033.
Colebrook, 2164.
Garforth & Walker, 2249.
Rome, 2350.
Haseltine (*Tesseyman & Howard*), 2255.
Newton (*Babbitt*), 2271.
Chapman, 2281.
Greey, 2338.
Tongue (*Merrill*), 2560.
Brunton, 2573.
Hurd & Simpson, 2594.
Cohrs, 2630.
Kirkman, 2636.
Douds & Hartsuff, 2649.
Carey, 2680.
Warren, 2781.
Jones, 2797.
Haseltine (*Hoyt*), 2943.
Hyatt (*Brown*), 3007.
Richardson, 3011.
Johnson (*Stevens, Steele & Condict*), 3052.
Beale, 3138.
Wirth (*Windhausen*), 3142.
Rogers, 3158.
Forbes & Hamilton, 3162.
Lake (*Baxter*), 3343.
Quick, jun., & Restler, 3383.
Hamilton, 3402.
Pope, 3405.
Temple, 3429.
Worth, 3478.
Haseltine (*Wyss & Studer*), 3487.
Walker, Messrs., 3501.
Bower & Bower, 3528.
Holman, 3699.
D'Humy, 4000.
Messenger, 4061.
Turner, 4068.
Richardson, 4136.
Clarke & Walker, 4149.
Weatherby, 4161.
Browne, 4279.

**Punches for cutting out imperfect portions of veneer.** *See* "Cutting wood."

**Punching, piercing and perforating leather:**
Lambert, 2549.
Greenwood & Dennell, 2774.

**Punching metals.** *See* "Boring."

**Punching or perforating paper.** *See* "Perforating paper."

**Purifying fusty casks.** *See* "Casks."

**Purifying water.** *See* "Filtering."

**Purses and portmonnaies:**
Pilon, 637.
Hathaway, 3140.
Dee, 3818.
Griswold (*Clark*), 4140.

**Pyramid band.** *See* "Tape band."

**Pyrometers.** *See* "Thermometers."

**Pyroxyline:**
Bickford (*Spooner & Pyroxyline Manufg. Co.*), 1170.

## Q.

**Quarries.** *See* "Bricks."

**Quarrying.** *See* "Mining."

**Quays.** *See* "Harbours."

**Quilters.** *See* "Sewing."

## R.

**Rabbling (tools for).** *See* "Tools."

**Racks and cribs.** *See* "Cribs."

**Rafts:**
Davis, 353.
Parratt, 469.
Christie, 922.
Dean, 996.
Jolley, 1029.
Hurst, 1247.
Roper, 1560.
Cameron, 1581.
Coombe, 1673.
Torrey, 1913.
Christie, 2027.
Torrey, 2375.
Newton (*Fleetwood*), 2388.
Hughes (*Peck*), 2670.
Lucop, 3062.
Lake (*Mountain*), 3200.
Snoulten & Hurst, 3217.
Storey, 3981.
Bonneville (*Fontaine*), 4260.

**Rags and waste; rag engines:**
Rydill, 82.
Bentley & Garth, 145.
Hamilton, Preston & Jones, 187.
Campbell, 513.
Noble, 607.
Curtis (*Gould*), 769.
Gibson, Taylor, Bardsley & Fletcher, 866.
Bevan & Drew, 931.
Rickards, 1460.
Lewis & Hawkins, 1543.
Casper (*Desuarts & Farinaux*), 1636.
Granville & Johnson, 2540.
Crookes, 2790.
Walker, 2879.
Neville, 2918.
Mackay, 3129.
Jonsen (*Jespersen*), 3657.
Smith (*Melville*), 3767.
Lister, 3838.

**Railway breaks.** *See* "Breaks for carriages."

**Railway buffers:**
Betteley & Sharer, 238.
Nicholson & Nicholson, 731.
Alley, 911.
Spencer & Smith, 1045.
Harrop, 1166.
Spencer & Smith, 1435.
Paget (*Schouberaky*), 1963.
Firth, 2141.
Varley & Furness, 2324.
Spooner, 2512.
Edwards (*Miller*), 2689.
Skidmore, 2801.
Jones, 2957.
Croft, 3103.
Cleminson, 3215.
Schroeter, 3582.
Brockelbank, 3876.
Smith & Coventry, 3878.
Manning, 3952.
Duckham, 4197.
Everett, 4275.

**Railway carriage lamps.** *See* "Lamps."

**Railway carriages, trucks and waggons:**
Gardiner, 37.
Burton, 47.
Wiles, 65.
Salmon, 147.
Glen, 176.
Betteley & Sharer, 238.
Jones, 261.
Hambruch, 416.
Cooper, 653.
Johnson (*Wellby*), 721.
Lake (*Wilson*), 727.
Lake (*Gardiner*), 757.
Palmer (*Hitchcock*), 772.
Tatham, 832.
Acklom, 890.
Alley, 911.
Spencer & Smith, 1045.
Fairlie (*Dixon*), 1108.
Mann, 1309.
Foot & Gregory, 1371.
Large, 1409.
Spencer & Smith, 1435.
Carpenter, 1481.
Whight (*Rogerson*), 1573.
Rhoades & Barrett, 1694.
Woodall, 1751.
Sterne, 1825.
Stone, 1855.
Evans, 1970.
Wyatt, 1973.
Mills (*Timby*), 2127.
Spencer (*Buckwell*), 2157.
Laverack, 2241.
Cramp, 2341.
Salmon, 2419.
Edwards (*Miller*), 2689.
Brown, 2803.
Lake (*Gardiner*), 2851.
Childs, 2896.
Dobson, 3192.
Hickinbotham, Marshall & Adams, 3206.
Cleminson, 3215.
Tuddenham, 3267.
Thomas, 3328.
Sterne & Perkins, 3527.
Whight (*Rogerson*), 3543.
Hyatt, 3684.
Fletcher, 3789.
Hunt, 3790.
Bedington & Greaves, 3872.
Wyatt, 3955.
Phillips, 4009.
Welch, 4028.
Wilcox, 4053.
Neill & Neill, 4058.
Maxwell, 4084.
Handyside, 4124.
Duckham, 4197.

**Railway carriages and engines (coupling and uncoupling):**
Betteley & Sharer, 233.
Terry & Cocker, 664.
Sayer, 982.
Green, 1307.
Duckham, 1322.
Spencer & Smith, 1435.
Haseltine (*Janney*), 1517.
Rhoades, 1571.
Newton (*Lemerre & Vu*), 2134.
Dwyer, 2304.
Spooner, 2512.
Edwards (*Miller*), 2689.
Gawler, 2737.
Young, 2748.
Skidmore, 2801.
Brockelbank, 2817.
Wirth (*Schalla*), 2992.
Clark (*Speer*), 2993.
Cleminson, 3215.
Richard, 3484.
Imray (*Heberlein*), 3496.
Schroeter, 3582.
Fry, 3681.
Rathbone, 3720.
Cohrs, 3775.
Brockelbank, 3876.
Everett, 4275.

**Railway carriages (heating).** *See* "Heating carriages."

**Railway engines.** *See* "Steam-engines."

**Railway mantelet carriages:**
Macdonell, 2423.

**Railway points and switches; transferring rolling stock:**
Robinson, 67.
Clark (*Rogé & Baffoy*), 237.
Bernstein, 333.
Reynolds & Reynolds, 469.
Broughton, Stephens & Bradley, 648.
Stevens, 658.
Baines, 820.
Poole, 1462.
Maher & Black, 1668.
Ryder & Brémond, 1698.
Dutton, 1712.
Clunes, Holland & Dutton, 2004.
Emmens & Rippin, 2108.
Luke, 2268.
Spagnoletti, 2401.
Huddart, 2681.
Bell, jun., 2764.
Spooner, 2854.
Single, jun., 2942.
Cowins, 3041.
Johnson (*Wharton, jun.*), 3133.
Potts, jun., 3179.
Smith, 3213.
Henderson, 3296.
Tomlin, 3538.
Wilkinson & Crowther, 3593.
Jordan, 3606.
George, 3616.
Huckvale, 3671.
Pickering, 3972.
Tweedy & Simpkin, 3996.
Sharples, 4169.
Cowins, 4187.

**Railway signals.** *See* "Signals."

**Railway station platforms (guard rails and fences for):**
Hinds, 282.
King, Messrs., 467.
Sonntag, 1112.

**Railway stations:**
Leveaux, 2841.

**Railway tickets and holders.** *See* "Tickets."

**Railway turntables:**
Abel (*Weickum*), 1685.
Duckham, 1969.
Wise (*Eccles & Eccles, jun.*), 2961.

**Railway wagons and trucks (loading, unloading and tipping):**
Reichenbach, 1334.
Brown, 2903.

**Railway watering columns:**
Haseltine (*Poage*), 2276.

**Railway wheels.** *See* "Wheels for carriages."

**Railways (clearing rails of).** *See* "Track clearers."

**Railways (endless rope):**
Emmens, 526.
Stone, 1855.
Johnson (*Agudio & Cail & Co.*), 3724.
Hunt, 3790.

**Railways (gauging and verifying relative positions of rails of):**
Morgan-Brown (*Camozzi & Schlieser*), 1246.

**Railways (lines or bars for transit across channels, spaces, &c.):**
Wilson, 1289.
Smith, 1359.

**Railways (overhead):**
Leigh (*Bunster*), 15.

**Railways (permanent way, rails, chairs and sleepers):**
Hughes (*Van Loo-Wauters*), 63.
Robinson, 67.
Roberts, 94.
Lyttle, 158.
Haseltine (*Purdie*), 233.
Vaughan (*Hemingway & Rainbow*), 297.
Reynolds & Reynolds, 489.
Viault, & Bernier, son, 543.
Broughton, Stephens & Bradley, 649.
Talbot, 716.
Lyttle, 791.
Tatham, 832.
Lyttle, 956.
Coddington (*De Witt & Fairman*), 1004.
Fell & Fell, 1014.
Townsend (*Michel*), 1050.
Smith, 1079.
Dowson & Dowson, 1116.
Wirth (*Asthoewer*), 1135.
Grover, 1230.
Lyttle, 1434.
Potts, jun., 1458.
Haggett, 1461.
Huddart, 1474.
Fox, 1759.
Watson, 1762.
Footner, 1774.
Plunkett, 1789.
Day (*Henderson*), 1850.
Stone, 1855.
Sanders & Sanders, jun., 2139.
Brown, 2156.
Newton (*Caumon (Absterdam)*), 2374.
Mewburn (*Hatzfeld*), 2411.
Whight (*Rogerson*), 2432.
Stoker, 2525.
Spencer (*Bull*), 2546.
Scattergood, 2561.
Galland, 2617.
Jensen (*Johnston*), 2650.
Arnold & Cleathero, 2676.
Robertson, 2684.
Brookes (*De Soignie*), 2730.
Newton (*Eads*), 3002.
Dobson, 3192.
Byron (*Arnold*), 3247.
Williams, 3290.
Henderson, 3296.
Thomas, 3328.
Hughes (*Blythe*), 3437.
Dearnaley & Potter, 3511.
Tomlin, 3538.
Jordan, 3606.
George, 3616.
Walker & Ragon, 3713.
Johnson (*Agudio & Cail & Co.*), 3724.
Hunt, 3790.
Alley & Handyside, 3904.
Pickering, 3972.
Neill & Neill, 4058.
Richards, 4068.
Potts, jun., 4081.
Alley & Handyside, 4065.
Pignel, 4176.
Swain, 4214.
Dering, 4228.
Kaulbach, 4245.

**Railways (portable):**
Markham, 345.
Markham, 2589.
Walker & Ragon, 3713.

**Raised pile band.** *See* "Tape band."

**Raising and lowering ships or vessels; hauling off stranded boats and ships:**
McClean, 41.
Sowerbutts, 109.
Grindrod, 391.
Clark, 611.
Findlay, 619.

**Raising ships, &c.**—*cont.*
Edington, 909.
Debenham, 975.
Macintosh, 1345.
Derney, 1468.
Baxter (*Folkard*), 2124.
Clark & Standfield, 2498.
Askew & Reynolds, 3403.
Vafea & Vafea, 3404.
Miller, 3562.
Scott, 4190.

**Raising submarine telegraph cables.** *See* "Grapnels."

**Raising water.** *See* "Pumps."

**Raising weights.** *See* "Hoists."

**Raisins (stoning).** *See* "Seeding."

**Rakes.** *See* "Tools."

**Rakes for drawing retorts.** *See* "Retorts."

**Ratchet braces:**
Noble, 2128.

**Razors:**
Kilner & Friston, 1093.

**Reading desks.** *See* "Furniture."

**Reaming:**
Lake (*Ritchell*), 558.

**Reaping; mowing; making hay:**
Brimley, 235.
Johnson (*Passmore*), 522.
Worthington, 675.
Mitchell, 718.
Bickerton & Bickerton, 748.
James & Burden, 1095.
Edwards, 1134.
Haveuhand, 1167.
Gibbons & Paget, 1292.
Fenby, 1431.
Lake (*Gordon*), 1883.
Gedge (*De Larret*), 1907.
Peile, 1923.
Culpin, 2131.
Whitworth, 2167.
Pidgeon & Manwaring, 2203.
Henman, 2273.
Withers & Batchelor, 2280.
Whitehouse, 2282.
Haseltine (*Lee*), 2287.
Johnson (*Dillé*), 2378.
Pidgeon & Manwaring, 2387.
Wilson & Burch, 2392.
Young, 2529.
Wilson, Burch & Battersby, 2697.
Tenwick, 2722.
Follows & Bate, 2836.
Brenton, 2913.
Harder, 2967.
Mills (*Burgess*), 3589.
Green & Burrows, 3673.
Parkes & Parkes, 3691.
Sellers, 4046.
Whitworth, 4183.
Robson, 4224.

**Re-capping cartridge cases.** *See* "Cartridges."

**Red lead.** *See* "Oxides."

**Reeds used in weaving.** *See* "Weaving (reeds)."

**Reefing sails.** *See* "Ships' sails."

**Reflectors:**
Clark (*Tesse, Lartigue & Prud'homme*), 400.
Myers, 512.
Zingler (*Dubsky*), 694.
MacCunn, 801.
Spartali, 1206.
Haggett, 1461.
Taylor, 2063.
Yewdall, 2085.

**Reflectors**—*cont.*
Zingler (*Dubsky*), 2789.
Woerteler (*Marshall*), 3152.
Stockman & Bennett, 3166.
Price & Wigham, 3198.
Weems, 3457.
Marsden, 3574.
Wirth (*Dauthendey*), 3842.
Newton (*Douillard*), 3970.
Davies & Dawson, 4064.
Souchard, 4105.

**Refrigerating; ice making; ice preservers:**
Clark (*Audouin & Pelouze*), 109.
Lake (*Martin & Beath*), 290.
Robertson, 448.
Marsters, 536.
Smith (*Giffard, Sublet & Armengaud, jeune*), 627.
Thomas (*Postle*), 709.
Marsters, 737.
Morgan-Brown (*Littmann*), 793.
Hunt (*Reynoso*), 799.
Miller, 925.
Lawrence, 1063.
Clark (*Pasteur*), 1106.
West, 1158.
Barlow (*Galland*), 1346.
Barlow (*Galland*), 1443.
Mort (*Nicolle & Mort*), 2153.
Haseltine (*Lloyd*), 2311.
Young (*Ryle, jun.*), 2332.
Kyle, 2410.
Warren, 2434.
Thomson, 2460.
Thomas, 2480.
Neubecker, 2500.
Fleury, 2523.
Paxman, 3024.
Wirth (*Windhausen*), 3142.
Boaz, 3171.
Wirth (*Beins*), 3194.
Hyatt, 3256.
Johnson (*Perroy*), 3377.
Warren, 3495.
Harrison, 3760.
Morton, 3902.
Weatherby, [illegible].

**Refrigerating or cooling rooms.** *See* "Ventilating houses."

**Registering, indicating and marking apparatus:**
Wier, 182.
Muirhead & Wood, 244.
Wyatt, 632.
Lancaster & De La Rue, 639.
Deacon, 937.
Bostelmann, 1447.
Donisthorpe, jun., 1456.
Smythie, 1866.
Black, 1876.
Durham & Hupton, 1951.
Nettlefold, 2065.
Phillips, 2069.
Norris, 2143.
Richmond, Messrs., 2146.
Emslie & Emslie, 2309.
Bezer, 2466.
Clark, 2629.
Hunt, 2709.
Robinson, 2713.
Caldbeck, 2715.
Maitland (*Hoffman*), 2834.
Robertson, 2881.
Stobart & Allan, 2903.
Macphail, 2931.
Bezer, 3160.
Starr, 3204.
Hill, 3231.
Brownjohn, 3423.
Parlour, 3476.
Colles, 3512.
Starr, 3583.
Cooke, 3705.
Spratt, 3793.
Ramsden & Dawes, 3860.
Lake (*Nobles & Gustin*), 3919.
Millar, 3950.
Burroughes, 4074.
Clark & Whitehouse, 4062.

Registering flow of liquids. *See* "Meters."

Releasing runaway horses. *See* "Harness."

Relief designs on fabrics (producing). *See* "Fabrics."

Relief stamping. *See* "Embossing."

Renouvelateurs. *See* "Motive-power (mechanical).

Reservoirs. *See* "Cisterns."

Resin:
Haseltine (*Lloyd*), 2311.
Mackay, 3129.
Hughes (*Blythe*), 3437.

Respirators; supporting respiration in suffocating atmospheres:
Imray (*Fayol*), 1852.

Retorts:
Foulis, 59.
Holman, 115.
Stevens, 216.
Taylor, Buckley & Chadwick, 430.
Maquay, 450.
Richards, 518.
Greenwood, Saville & Morton, 568.
Patison, 569.
Jensen (*Erichsen & Maardt*), 602.
Robertson, 708.
Parlby, 768.
Tiffany, 798.
Skoines, 846.
Skoines, 1086.
Clark, 1216.
Thomas, 1244.
West, 1255.
Rowland, 1287.
Henderson, 1337.
Smith (*Martin*), 1397.
Tooth & Tooth, jun., 1414.
Baggs, 1471.
Collis, 1533.
Alley, 1633.
Newbold, 1677.
Wigg, 1725.
Kidd, 1917.
Wotherspoon, 2337.
Grice, 2339.
Shepherd, 2356.
Wotherspoon & Foulis, 2391.
Robinson, 2404.
Salmon, 2419.
Somerville & Robinson, 2453.
Nicholson, 2524.
Hedley, 2543.
Kennelly, 2813.
Maitland (*Hoffman*), 2834.
Yarrow (*Steers*), 2901.
Wilson, 2954.
Wirth (*Beins*), 3194.
West, 3225.
Manwell, 3314.
Surmon, 3327.
Wilkinson, 3430.
Price, 3462.
Scott, 3505.
Harrison, 3526.
Fenby, 3590.
Darlington & Scott, 3636.
Parker & Wade, 3868.
Bell, jun. & Bell, 3910.
Harrison, 4165.
Spice, 4178.

Reverberatory furnaces. *See* "Furnaces and cupolas.'

Reversing apparatus for machinery:
Wilson (*Eickemeyer*), 76.
Sudlow, 273.
Robertson, 448.
Richards, 518.
Hunt (*Hodges*), 874.

Reversing apparatus—*cont.*
Thurlow, 988.
McElroy, 1100.
Murdoch, 1209.
Black, 1367.
Tinne, 1419.
Henderson, 1442.
McNabb, 1494.
Strange & Cornish, 1559.
Donald & Atkey, 1693.
Bousfield (*Eickemeyer*), 1794.
Newton (*Babbitt*), 2271.
Varley & Furness, 2324.
Spencer, 2326.
Greey, 2338.
Haseltine (*Bayrs & Stuart*), 2354.
Johnson (*Dill*), 2378.
Gedge (*Cornely*), 2395.
Richmond, 2551.
Brunton, 2573.
Lowe, 2717.
Pitcher, 2723.
Lowry, 2864.
Henry (*Depres*), 2876.
Walker, 2879.
Adams, 3164.
Owen, 3506.
Boyman, 3515.
Spill, 3650.
Johnson (*Agudio & Call & Co.*), 3724.
Lancaster, 4037.
Clarke & Walker, 4149.
Whitaker, 4158.

Ribbon looms. *See* "Weaving."

Ribbons (winding and preserving in boxes):
Russell & Dominy, jun., 2492.

Rice (hulling). *See* "Hulling."

Rifling. *See* "Boring."

Riggers. *See* "Pulleys."

Ring spinning. *See* "Spinning, twisting."

Ringing bells from entrance doors. *See* "Bells."

Rings:
Brooks & Bull, 1501.

Rings for cutting infants' teeth:
Hickisson, 2468.

River and canal banks:
Paddison, 193.
Mellor, 1767.

Rivers (giving warning of the rise and fall of water):
Lyon & Robinson, 1529.

Rivets. *See* "Nails."

Rivetting machines. *See* "Metals (forging)."

Road making and paving; road rollers:
Smith, 23.
Lyttle, 52.
Macneill, 184.
Macneill, 206.
Fullicks, 477.
Marsland, 592.
Ivory, 717.
Smith, 759.
Lyttle, 791.
Coddington (*De Witt & Fairman*), 1004.
Gray (*Sebille*), 1054.
Stone, 1261.
Haggett, 1461.
Savage, 1534.
Henson, 1568.
Henson, 1891.
Breeson, 1940.

Road making, &c.—*cont.*
Henson, 1968.
Croskey, 2115.
Robbins, 2116.
Willacy, 2196.
Ellison, 2429.
Barnett, 2508.
Stone, 2578.
Lake (*Hotchkiss*), 2698.
Stone, 2706.
Kennelly, 2813.
Hill & Hill, 2872.
Brasier, 2898.
Ord & Maddison, 3249.
Wood, 3255.
Johnson (*Malo & Robin*), 3371.
Bennett, 3345.
Knight, 3373.
Hyatt, 3380.
Hyatt, 3381.
Hughes (*Blythe*), 3437.
Cotton, 3522.
Clark (*Fitz Randolph*), 3544.
Galloway, 3599.
Hyatt, 3684.
Lyttle, 3769.
Hyatt, 3788.
Ford, 3865.
Renaudon, 3887.
Vigouroux, 3985.
Moore, 4034.
Bonham, 4109.
Moore & Steven, 4156.
Hyatt, 4241.
Clark, 4283.

Roads (cleansing and sanding):
Yull, 485.
Greenwood, 585.
Willacy, 2196.
Lee, 3891.

Roasting coffee. *See* "Coffee."

Roasting malt. *See* "Malt."

Roasting or cooking. *See* "Cooking."

Roasting or heating. *See* "Heating."

Roasting ores. *See* "Metals (smelting)."

Rock drills. *See* "Boring rock."

Rockets; rocket engines:
Rogers, 491.
Pain, 600.
Westhorp, 1289.
Mackie & Faure, 1890.
Brown, 2346.
Hale, 2607.

Rods (compensating for expansion and contraction in):
Stevens, 658.

Rollers and clod crushers, rolling land. *See* "Ploughing."

Rolling metals. *See* "Metals (rolling)."

Roofs; roofings; cleaning glass roofs; roof protectors:
Lyttle, 52.
Toulson & Harmer, 335.
Taylor, 805.
Coddington (*De Witt & Fairman*), 1004.
Nancarrow, 1137.
Taylor, 1438.
Taylor, 1439.
Haggett, 1461.
Jensen (*Erichsen*), 1499.
Rollason, 1610.
Hodson, 1754.
Wade & Cherry, 1781.
Sterling, 2022.
Robbins, 2116.

Roofs, &c.—*cont.*
Gaillon, 2414.
Clark (*Pacy*), 2746.
Hyatt, 2788.
Cunliffe, 2802.
Stone, 2915.
Whichcord, 3040.
Wilkinson, 3063.
Hyatt, 3256.
Hyatt, 3380.
Hyatt, 3381.
Newton (*Bade*), 3561.
Hyatt, 3658.
Hyatt, 3684.
Hornblower, 3714.
Hyatt, 3788.
Thomson, 3957.
Hyatt, 4241.

Roots (drying). *See* "Drying."

Roots (gathering, &c.). *See* "Potatoes."

Rope locomotives:
Johnson (*Agudio & Cail & Co.*), 3724.

Ropes, cordage and twine:
Unsworth, 195.
Newton, 1007.
Morris, 1344.
Mannini, 1530.
Wirth (*Honigmann*), 1864.
Wirth (*Sigl*), 1978.
Abel (*Jourdeuil, Parisot & Guasco*), 2072.
Campana (*Pistorosi*), 2105.
Binns, 2260.
Johnson (*Einek*), 3051.
Harrison, 3183.
Hyatt, 3256.
Mewis, 3703.
Hunt, 3790.
Wirth (*Sigl*), 4026.
Waithman, 4044.

Ropes (preventing slipping in passing over or round drums):
Jackson, 595.

Roses or nozzles:
Rydill, 376.
Pinnell, 1778.
Wheeler, 2503.

Rotary furnaces. *See* "Furnaces."

Rousing or agitating. *See* "Mixing."

Roving. *See* "Spinning, twisting."

Rubber goods (preserving from decay). *See* "Preserving."

Rudders. *See* "Steering."

Rugs. *See* "Mats."

Rulers; ruling paper:
Newton (*Averell*), 20.
Cumming, 267.
Patrick & Tracy, 1337.
Maurel, 1800.
Cumming, 2538.
Cluzet & Simon, 3299.
Johnson (*Létang & Brissard*), 3711.
Fuller (*Ashley*), 3974.

## S.

Sacks. *See* "Bags."

Sad irons. *See* "Ironing."

Saddles. *See* "Harness."

Safes (iron):
Hipkins, 165.
Lake (*Warner*), 226.
Lewis, 1780.
Chatwood, 1846.
Whichcord & Anderson, 2048.
Hayward, 2050.
Easton, Pole & Whichcord, 2149.
Greenwood, 2545.
Cunliffe, 2802.
Cottam, 3065.
Byron (*Arnold*), 3247.
Hyatt, 3256.
Geering, 3294.
Chatwood, 3550.
Fear & Wilson, 3689.
Lewis, 3721.
Taunton, 4066.
Barton, 4139.

Safes (provision):
Acklom, 890.
Hyatt, 3256.
Peacock & Peacock, 3641.
Harrison, 3760.

Safety lamps. *See* "Lamps."

Salicylic acid. *See* "Acids."

Salt and brine; pipes for conveying brine:
Pohl, 4.
Imray, 325.
Bowden, 399.
Shaw, 455.
Robertson, 706.
Lancaster & Swindells, 714.
Wilson, 875.
Stubbs, 1034.
Jensen (*Erichsen & Maardt*), 1073.
Morgan-Brown (*Hersey, Hersey & Gray*), 1233.
Pohl, 1503.
Grafton, 2725.
Fottrell, 3086.
Williamson & Dale, 3270.
Hamer, 3682.
Curie, 4181.

Saltpetre:
Haddan (*Lever*), 1630.

Salts (not defined):
Croll, 45.
McDougall, 393.
Patison, 569.
Miller, 925.
Hughes (*Daudenart & Verbert*), 938.

Salvers:
Rhodes, 3517.

Sample cases:
Raimond, 987.

Samples (cutting). *See* "Patterns."

Sanitary pans (portable). *See* "Pans."

Sand banks from mouths of harbours, &c. (removing). *See* "Dredging."

Sanding tramway tracks and roadways:
Yull, 495.

Sandwich boxes:
Browne (*Berthoud*), 2331.

Sashes. *See* "Windows."

Saucepans, &c.:
Clark, 286.
Peacock & Peacock, 3641.

Saucers. *See* "Drinking vessels."

Sausages. *See* "Preserving food."

Saving from drowning. *See* "Life buoys."

Saving fuel. *See* "Fuel."

Saving life and property from wrecks. *See* "Life boats."

Saws; sawing; packing saws:
Hodson, 93.
Brotherhood, 287.
Newton (*Kirkham*), 444.
Western, 613.
Cartwright, 1427.
Lake (*Whitney*), 1801.
Harrison, 2848.
McGregor, 2939.
Western & Hamilton, 3203.
Lee, 3468.
Thompson, 4052.
Worssam, 4206.

Scabbards. *See* "Swords."

Scales. *See* "Weighing."

Scaling or cleaning tubes. *See* "Tube cleaners."

Scarves. *See* "Neck-ties."

Scent and perfumes; perfuming; smelling bottles:
Philippi, 11.
Webb, 728.
Toner, 3054.
Conradi, 3124.

School desks, furniture, &c.:
Whittenbury & Whittenbury, jun., 21.
Gibson (*Andrews*), 119.
Tongue (*Suzanne*), 140.
Haseltine (*Nichols*), 303.
Francis, 1028.
Hammer, 1303.
High, 1402.
Pells, 1495.
Glendenning, 2159.
Poole, 2478.
Sonnenschein, 2616.
Leggett, 2906.
Connon, 3050.
Martin, 3642.
Malone, 3811.

Scissors and shears:
Vaughan (*Scheidecker*), 661.
Hore, 871.
Bullows & Bullows, 1164.
Clark, 1228.
Twigg, 1314.
Haseltine (*Guernsey*), 1352.
Turner, 1609.
Clark & Martin, 1696.
Bétis, 1728.
Bacon, jun., 1790.
McWilliams, 2005.
Phipps, 2635.
Phipps, 2970.
Gedge (*Zimmerman*), 2980.
Plant, 3516.
Holyoake & Brown, 3723.
Boutlier & Couhault, 3951.

Scoops used in gas works. *See* "Gas."

Scoring or registering numbers. *See* "Registering."

Scouring or polishing wire. *See* "Grinding, polishing."

Scrap books. *See* "Books."

Scrapers for cleaning tubes. *See* "Tube cleaners."

**Screens; fire screens:**
Whitburn, 48.
James, 3359.
Casson, 3636.
Hyatt, 3684.

**Screens; screening.** *See* "Sifting."

**Screens for ecclesiastical decorations.** *See* "Ecclesiastical."

**Screw gill machinery.** *See* "Spinning (carding)."

**Screws; screw-drivers; cutting internal screws; screw-stocks:**
Page, 107.
Talcott (*Ayres*), 414.
Schlesinger (*Grout*), 465.
Wise (*Mc Fetbrics*), 725.
Williams (*Ayres*), 1024.
Keen, 1296.
Griffin (*Hickey*), 1398.
Liernur, Kops & Martignoni, 1648.
Donald & Atkey, 1653.
Heap, 1765.
Smart & Fixter, 1820.
Sterling, 2022.
Lake (*Pope*), 2212.
Browne, 3118.
Bromhead, 3234.
Rogers, 3645.
Mewis, 3703.
Spencer, 3737.
Hughes (*Wood*), 3834.
Smith & Coventry, 3878.
Lancaster, 3922.
Browne (*Durand & Duborget*), 4060.

**Scudding skins.** *See* "Leather."

**Sculpture:**
Rowbotham & Richardson, 684.
Mathis, 867.
Mathis, 1502.
Clark (*Drague*), 3167.

**Scutching fibres.** *See* "Fibres (cleaning)."

**Seals:**
Banks, 2468.

**Sea-sickness (preventing):**
Carmichael, 589.
Black, 920.
Roy, 3374.

**Seasoning timber.** *See* "Preserving wood."

**Sea-walls.** *See* "Breakwaters."

**Sea-water (rendering suitable for manufacturing purposes):**
Knott, 2442.

**Seaweed (preserving and treating):**
Lee, 493.
Henry (*Collett & De Lavillasse*), 650.
Metcalfe & Massingham, 3329.
James, 3359.
Hunt (*Reynoso*), 3717.
Collet & De Lavillasse, 4135.
Collet, De Lavillasse & Testud de Beauregard, 4166.

**Sediment and incrustation (preventing).** *See* "Oxidation."

**Seed drills.** *See* "Sowing."

**Seed gathering (weed).** *See* "Weeders."

**Seeding or stoning raisins:**
Schlesinger (*Dixon*), 464.

**Seeds (gathering grass or clover):**
Jurgenson (*Ingermann*), 2972.

**Seeds (mixing):**
Pumphrey, 936.

**Seeds (treating).** *See* "Grain and seeds."

**Separating two liquids or freeing a liquid from any substance held in solution or suspension:**
Haseltine (*Pope & Sawyer*), 1641.

**Sewage (treating).** *See* "Manure."

**Sewing and embroidering:**
Lake (*Seeling*), 79.
Smith & Starley, 133.
Barnett, 179.
Backus, Sawyer & Loryea, 217.
Chapman, 434.
Newton (*Kirkham*), 444.
Clark (*Goodwin*), 501.
Fowke, 624.
Griswold, 699.
Rudolph, 888.
Melhuish, 946.
Laycock & Shuttleworth, 1078.
Hughes, 1096.
Johnson (*Farmer*), 1107.
Hamilton, 1126.
Taylor, 1266.
Lake (*Mooney & Comstock*), 1283.
Ward, 1386.
Fenby, 1431.
Mackie, 1463.
Berg, 1738.
Lomax, Bradbury, Chadwick & Singleton, 1823.
Lake (*Brock*), 1930.
Russell (*Bouillon*), 2009.
Griswold, 2176.
Herrick, 2185.
Haseltine (*Alexander*), 2212.
Kimball & Morton, 2227.
Smith, 2351.
Wanzer (*Hall*), 2367.
Gedge (*Cornely*), 2395.
Wanner, 2481.
Wormald & Dobson, 2441.
Bishop (*Hall*), 2555.
Tongue (*Merrill*), 2558.
Tongue (*Merrill*), 2560.
Turner, 2653.
Hughes (*Sargent*), 2683.
Hopkins, 2690.
Weir, 2738.
Cumming, 2765.
Kappmeyer, 2792.
Jones, 2797.
Davies (*De Saumery*), 2847.
Westley & Westley, 2849.
Mills (*Knowe*), 2890.
Becker & Jones, 2893.
Hitchman, 2925.
Henderson (*Leconte & Sons*), 2946.
Johnson, 2985.
Shakespear & Illston, 3015.
Turner (*Webster & Webster*), 3021.
Wood, 3026.
Lely, 3072.
Deshayes, 3073.
Smith & Starley, 3090.
Davies, 3146.
Brewer (*Henderson & Wright*), 3201.
Moss, 3223.
Brown, 3439.
Denne & Denne, 3451.
Ginks, 3464.
Lomax, Bradbury, Chadwick & Singleton, 3499.
Sidgreaves, 3513.
Toplis, 3525.
Turner, 3535.
Moreau, 3614.
Newton (*Deshayes*), 3634.
Hopkins, 3653.
Clark (*De Saumery*), 3835.
Pickup & Carter, 3881.
Russell (*Bouillon*), 3976.
Jones, 3982.
Gedge (*Cornely*), 3980.
Bonneville (*Klotz*), 3991.
Gedge (*Alminana & Sarkissian & Gigaraff*), 4121.

**Sewing, &c.—*cont.***
Colborne & Alcock, 4127.
Brewer (*Appleton*), 4232.
Wade (*Wade*), 4272.
Barlow (*Rieter, Wehrli & Grobli*) 4278.

**Sewing books and pamphlets:**
Newton (*Loryea*), 2349.
Bousfield (*Shedd*), 2641.
Haseltine (*Averell*), 4031.

**Sewing leather, canvas and skins:**
Cowper, 131.
Lake (*Blake*), 227.
Lake (*Barton*), 540.
Smyth, 609.
Dodge (*McKay*), 985.
Clark (*Boyle*), 1027.
Morgan-Brown (*Richardson*), 1111.
Cowper, 1822.
Curtis (*Roes*), 2238.
Denne & Denne, 3451.
Ginks, 3464.

**Sewing-cotton.** *See* "Thread."

**Sex-marking sheep, &c.** *See* "Medical treatment of animals."

**Shackles.** *See* "Chains."

**Shafts and shafting:**
Lake (*Small*), 27.
Newton (*Dowry*), 89.
Batley, 242.
Lake (*Corliss*), 300.
Mewburn (*Dubreuil*), 410.
Mills (*Cathcart & Negley*), 461.
King, Messrs., 468.
Richards, 518.
Lake (*Wilson*), 727.
Carr, 1417.
Fenby, 1431.
Hagrett, 1461.
Hadfield, 1787.
Mills (*Bottum*), 1963.
Barrow, 2154.
Sutton, 2315.
Varley & Furness, 2334.
Wise (*Eccles & Eccles, jun.*), 2361.
Newton (*Ashe*), 2736.
Mills (*Charlton*), 2810.
Wirth (*Oesenbrück*), 2861.
Byron (*Arnold*), 3247.
Nott, 3265.
Byron (*Arnold*), 3365.
Hayes, 3534.
Revell, 3709.
Wyatt, 3955.
Whitaker, 4158.

**Sharpening cutting tools, &c.** *See* "Grinding and sharpening."

**Shawls:**
Wood, 151.
Kippax, 1722.

**Shearing animals:**
Norman, 135.
Vaughan (*Scheidecker*), 661
Hore, 871.
Bullows & Bullows, 1164.
Clark, 1228.
Twigg, 1314.
Haseltine (*Guernsey*), 1382.
Turner, 1609.
Clark & Martin, 1696.
Bétis, 1728.
McWilliams, 2005.
Phipps, 2635.
Phipps, 2970.
Gedge (*Zimmerman*), 2969.
Plant, 3516.
Holycake & Brown, 3722.
Bouttier & Couhault, 3951.

**Shearing metals.** *See* "Cutting."

**Sheathing ships.** *See* "Ships' bottoms (coating)."

**Sheaves** (making up crops into). *See* "Reaping."

**Sheep dips.** *See* "Medical treatment of animals."

**Sheeters.** *See* "Spinning (carding)."

**Sheets** (bedding). *See* "Upholstery."

**Shell and other projectiles.** *See* "Shot."

**Shields; mantlets:**
Haggett, 1461.
Timmis, 1521.
Clark & Standfield, 2498.
Count de Gendre, 4215.

**Ship and boat building, ballasting, cleaning and repairing; boat plugs:**
McClean, 41.
Lyttle, 52.
Davis, 163.
Paddison, 193.
Davis, 353.
Fullicks, 477.
Nangle, 495.
Newell, 503.
Carmichael, 589.
Clark, 611.
Lyttle, 791.
Smithdale, 851.
Edington, 909.
Black, 920.
Dean, 996.
Jolley, 1029.
Bessemer, 1076.
Lawrie, 1092.
Lister, 1140.
Hurst, 1247.
James, 1248.
Henderson, 1278.
Wilson, 1289.
Arnall, 1306.
Brough, 1312.
Goddu, 1313.
Macintosh, 1345.
Crispin, 1349.
Atkin, 1361.
Berthon, 1384.
Haggett 1461.
Davis, 1515.
Deacon, 1542.
Roper, 1560.
Defty, 1602.
Pattison, 1650.
Winans (*Winans*), 1651.
Coombe, 1673.
Roberts, 1700.
Chomel, 1705.
Verran, 1747.
Lewis, 1780.
Rae, 1802.
Johnson (*Béléguic*), 1898.
Matthey (*Mendes*), 1977.
Sterling, 2022.
Bonneville (*Weisker*), 2092.
Brown, 2156.
Johnston, 2229.
Ertlin, 2256.
Lamb, 2467.
Macomber, 2475.
Basin, 2562.
Whitgreave, 2591.
Long, 2633.
Hyatt, 2788.
Clark (*Boys*), 2807.
Thomson, 2816.
Palmer, jun. (*Palmer*), 2875.
Walker, 2879.
Palmer, jun. (*Palmer*), 2882.
Lucop, 3062.
Bingham, 3153.
Dobson, 3192.
Spartali, 3197.
Western & Hamilton, 3203.
Howden, 3278.

**Ship and boat building, &c.—*cont.***
Harvey & Pryer, 3315.
Roy, 3374.
Hyatt, 3380.
Hyatt, 3381.
Hughes (*Blythe*), 3437.
Miller, 3562.
Thomas, 3596.
Walker (*Burnet*), 3695.
Griffiths, 3817.
Egerton, 3936.
Anderson, 3999.
Parlour, 4030.
Taylor, 4142.
Count de Gendre, 4215.

**Ships' boats** (lowering, raising and disengaging):
Gumpel, 9.
Aylward, 113.
Davis, 162.
Lacon, 186.
Pinker, 481.
Browne, 636.
Terry & Cocker, 664.
Alex, 1068.
Artsayooloff (*Stepanoff*), 1254.
Brough, 1312.
Thorold, 1326.
Dunn, 1350.
Huish, 1363.
Berthon, 1384.
Carpenter, 1481.
Cullen, 1576.
Mallory, 1642.
Hammond (*Shaw*), 1652.
Coombe, 1673.
Baxter (*Folkard*), 1687.
Burke, 1920.
Baxter (*Folkard*), 2124.
Long, 2633.
Haddan (*Holtermann*), 3586.
Young, 4050.

**Ships' bottoms** (coating, preserving and sheathing):
Paddison, 193.
Nangle, 495.
Redman, 732.
Rollason, 1610.
Fisher, 2485.
Smedley, Bradbury & Hall, 2986.
Weil & Lyte, 3136.
Rahtjen, 3920.
Thomson, 3957.
Wilkinson, 4134.

**Ships' cables** (draw springs for):
Firth, 2141.

**Ships' cargoes** (loading and unloading):
Jones, 857.
Debenham, 975.
Duckham & Birt, 1297.
Keen & Dence, 1732.
Johnson (*Lawton & Gordon*), 2059.
Wilson, 2120.
Paul, 2657.
Imray (*Société des Mines de Lens*), 2669.
Robertson, 2684.

**Ships'** (indicating water level and detecting leaks; ships' hold sounders):
Moseley, 2969.

**Ships' logs:**
Cederholm & Peterson, 1394.
Moore, 3989.

**Ships' masts and spars; working yards:**
Lee & Rogers, 190.
Haggett, 1461.
Crispin, 1797.
Newton (*Fleetwood*), 2388.
Cunningham, 3618.

**Ships of war:**
Wilson, 239.
Lister, 1140.
Goddu, 1313.
Haggett, 1461.
Pattison, 1650.
Lewis, 1780.
Whitgreave, 2591.
Palmer, jun. (*Palmer*), 2875.
Palmer, jun. (*Palmer*), 2882.
Lucop, 3062.
Spartali, 3197.
Byron (*Arnold*), 3247.
Byron (*Arnold*), 3365.
Lewis, 3721.
Parlour, 4030.
Count de Gendre, 4215.

**Ships** (preventing foundering or wreck through leakage):
Wirth (*Schaal*), 3489.

**Ships' rigging:**
Lake (*Brownell*), 2302.
Mewis, 3703.

**Ships' sails; reefing sails:**
Coubro, 185.
Lake (*Barton*), 540.
Morris, 1344.
Crispin, 1349.
Kimball & Morton, 2227.
Soul (*Courtenay*), 2362.
Newton (*Fleetwood*), 2388.
Southward & Mathews, 4002.

**Ships** (transmitting letters, &c.):
Roturier, 3057.

**Shirt studs.** *See* "Buttons."

**Shirts; fronts; undershirts:**
Lamb & Lowe, 73.
Debenham, 502.
Alley, 537.
Lea, 1031.
Young, 1056.
Graham, 1505.
Holland (*Johnston*), 1912.
Cooper, Clarke, Donisthorpe & Corah, 3113.
Hart, 3913.

**Shoeing horses.** *See* "Horseshoes."

**Shoes and slippers.** *See* "Boots."

**Shop fronts** (decorating). *See* "Buildings."

**Shot, shell and other projectiles:**
Haseltine (*Haycock*), 126.
Rogers, 491.
Gercke, 548.
Pain, 600.
Bonneville (*Biennait*), 1348.
Barlow (*Taylor*), 1533.
Mackie & Faure, 1830.
Brown, 2346.
Cunningham, 2379.
Hale, 2607.
Little, 3635.

**Shovels.** *See* "Spades."

**Shutters:**
Whitburn, 48.
Turner, 60.
Clark, 278.
Meakin, 1179.
Hyatt, 2788.
Leggett, 2906.
Bingham, 3153.
Hyatt, 3256.
Morris, 3422.
Poth & Simpson, 3431.
Hyatt, 3684.
Haseltine (*Nichols*), 4276.

**Shuttles used in net making.** *See* "Nets."

**Shuttles used in sewing.** *See* "Sewing."

**Shuttles used in weaving.** *See* "Weaving."

**Sickles.** *See* "Reaping."

**Sieves.** *See* "Sifting."

**Sifting; sorting; separating:**
Fairclough & Fairclough, 350.
Clark (*Dean*), 355.
Caton, 646.
Ward, 683.
Francis (*La Rue*), 930.
Pumphrey, 936.
Clark (*Challeton*), 945.
Midgley, 949.
Hare & Ardron, 998.
Dana (*Smith*), 1120.
Hay, 1138.
Lacroix, 1152.
Smith, 1224.
Wilson, 1235.
Dobelle, 1551.
Roberts, 1857.
Evrard, 1927.
Weare, 1957.
Heap, 1989.
Hinchliffe, 2056.
Manock & Manock, 2125.
Dana (*Smith*), 2274.
Boby, 2300.
Wright, 2470.
Cox, 2483.
Murdoch (*Haggenmacher*), 2547.
King, 2574.
Croll & Dalgairns, 2608.
Wahab, 2673.
Hinton, 2714.
Andrews, 2721.
Lake (*Squier & Squier*), 2767.
Sleap, 2777.
Staniland, 2806.
Gedge (*Alexandre-Balat*), 2929.
Buchholz, 3068.
Walker & Cole, 3276.
Keohler & Ferguson, 3388.
Heatherington, 3424.
Peer, Lundquist & Rutherford, 3847.
Jensen (*Glen*), 3855.
Mitchell, 3859.
Slagg, 3911.
Hinchliffe, 4004.
Trafford, 4137.
Harrison, 4165.
Hollingworth, 4250.
Allin, 4266.

**Sights for fire-arms.** *See* "Fire-arms (charging)."

**Sign boards, window and other signs, station and street indicators:**
Parker-Rhodes, 173.
Holyoake, 3075.
Holyoake, 3250.
Gedge (*Laujorrois*), 4195.

**Signals, alarms and communicating apparatus (miscellaneous):**
Highton, 85.
Johnson, (*Digney, Digney, Lartigue & Forest*), 247.
Gedge (*Pasquier*), 295.
Dennis, 301.
Smith, 324.
Rogers, 491.
Emmens, 576.
Pain, 600.
Densmore & Farnham, 668.
Tommasi, 696.
Barney, 785.
Barney, 861.
Sadler, 883.
Sumners & Fraser, 1408.
Lyon & Robinson, 1529.
Hugon, 1593.
Bailey, 1706.
Harrison, 1717.
Wood & Clarke (*Harrison*), 1772.

**Signals, &c.—*cont.***
Chatwood, 1846.
Johnson (*Osborne*), 1947.
Haas, jun., 2231.
Laverack, 2241.
Browne (*O'Lawlor*), 2327.
Clark & Standfield, 2496.
Canning & Mayor, 2554.
Dowdall, 2566.
Jaynor, 2577.
Spong & Spong, 2754.
Holmes, 2917.
Moseley, 2969.
Alley, 3148.
Chadburn, 3464.
Symington, 3482.
Truman, 3488.
Hyde, Hyde & Aldis, 3761.
Edgerton, Hordley & Newton, 3772.
Spratt, 3793.
Poole, 3823.
Stearns, 3879.
Stuart, Jagger, Smith & Pilling, 3963.
Bernadac, 4067.
Nickoll, 4106.
Basin, 4274.

**Signals and alarms in case of fire:**
Blake, 342.
Lake (*Johnson*), 371.
Newton (*Grechi*), 1172.
Blake, 1429.
Browne (*O'Lawlor*), 2327.
Moseley, 2969.
Symington, 3482.

**Signals and communicating apparatus for railways and tramways:**
Umbers, Fenn & Whiteman, 56.
Robinson, 67.
Preece, 153.
Johnson (*Digney, Digney, Lartigue & Forest*), 247.
Bimsley, 251.
Twynam, 285.
Bernstein, 332.
Bernstein, 333.
Carr & Barlow, 344.
Young, 347.
King, Messrs., 467.
Clark (*Tesse, Lartigue & Prud'homme*), 490.
Lyon, 523.
Wyatt, 529.
Owen, 534.
Visult & Bernier, son, 543.
Sanders (*Sanders*), 625.
Broughton, Stephens & Bradley, 649.
Skinner, 810.
Baines, 820.
Newton (*Ruggieri*), 1064.
Smellie & Vance, 1194.
Smith, 1376.
Harvie, 1404.
Lyttle, 1434.
Poole, 1462.
Poole, 1671.
Dutton, 1712.
Abel (*Westinghouse, jun.*), 1735.
Crispin, 1797.
Tyer, 1845.
Evans, 1970.
Wyatt, 1973.
Clunes, Holland & Dutton, 2034.
Thomas & Piggott, 2107.
Emmens & Rippin, 2166.
Laverack, 2241.
Entwistle, 2283.
Spagnoletti, 2401.
Stapleton, 2402.
Salmon, 2419.
Holten & Varley, 2446.
Snowball, 2553.
Canning & Mayor, 2554.
Walker, 2568.
Lake (*Pope*), 2656.
Spong & Spong, 2754.
Bell, jun., 2764.
Cole, 2772.
Hornstedt, 2808.
Spooner, 2854.
Cowins, 3041.
Johnson, 3174.
Smith, 3213.

**Signals, &c.—*cont.***
Davidson & Williams, 3236.
Haseltine (*Hall & Van Blarcom*), 3290.
Henderson, 3307.
Foster, 3316.
Dunk, 3436.
Reid, 3471.
Truman, 3488.
Haghe, 3561.
Marsden, 3574.
Stevens, 3619.
Pratt, 3914.
Wyatt, 3955.
Tweedy & Simpkin, 3996.
Neill & Neill, 4058.
Souchard, 4105.
Nickoll, 4106.
Barrow, 4220.
Pignel, 4253.

**Signals and communicating apparatus used in ships:**
Canning, 120.
Johnson (*Digney, Digney, Lartigue & Forest*), 247.
Guattari, 458.
Westhorp, 1339.
Cederholm & Peterson, 1394.
Sumners & Fraser, 1408.
Bailey, 1706.
Hailstone & Mc Phee, 1817.
Canning & Mayor, 2554.
Jaynor, 2577.
Spong & Spong, 2754.
Nickoll, 2796.
Moseley, 2969.
Silber & Farquhar, 3391.
Grant, 3507.
Lake (*Noblee & Gustin*), 3913.
Adair, 3965.
Newton (*Douillard*), 3970.
Souchard, 4105.
Nickoll, 4106.

**Silver leaf.** *See* "Leaf."

**Silver (recovering).** *See* "Metals (smelting)."

**Silverine (amalgam resembling silver):**
Keene (*Baudoin*), 834.

**Silvering looking-glasses.** *See* "Looking-glasses."

**Silvering mica.** *See* "Mica."

**Singeing fabrics and yarns.** *See* "Finishing."

**Singeing horses:**
Messenger, 4061.

**Singeing twine.** *See* "Ropes."

**Sinking wells.** *See* "Wells."

**Sinks or jaw-boxes:**
Shanks, 199.

**Siphons:**
Ray (*Rousson*), 2406.

**Size:**
Whitehead, 748.
Dale & Dale, 3191.
Dean, sen., 3587.
Smith (*Meloille*), 3767.

**Sizing and dressing yarns:**
Kenyon, Taylor & Kenyon, 402.
Briggs, Willan & Lewis, 494.
Whitehead, 748.
Baerlein, 913.
Mendel, 1273.
Swainson & Haydock, 1748.
Singleton, 2344.
Bullough, 3648.
Coates, 3686.
Baerlein, 4014.
Singleton, 4044.

Sizing and glazing paper:
Prince (*Flinsch*), 461.

Skates:
Wulff, 2232.
Johnson (*Whelpley*), 3371.

Skelps for making tubes. *See* "Pipes."

Skeps. *See* "Baskets."

Skins and hides. *See* "Leather."

Skylights. *See* "Windows."

Slabs:
Noad, 539.
Rowbotham & Richardson, 684.
Whichcord & Anderson, 2048.
Robbins, 2116.
Hyatt, 3684.
Britten, 3750.
Renandon, 3887.
Oppenheimer, 3971.
Johnson (*Cottrell*), 4102.

Slag employed in brick making. *See* "Bricks."

Slashers. *See* "Sizing yarns."

Slate. *See* "Stone."

Sleepers for railway rails. *See* "Railways (permanent)."

Sleeve links. *See* "Buttons."

Slicing and paring vegetables and fruit. *See* "Preserving food."

Slide rests for lathes. *See* "Turning."

Sliver cans. *See* "Spinning, twisting."

Slop carts:
Greenstreet, 3485.

Slops (treating). *See* "Manure."

Slotting machinery. *See* "Cutting."

Slubbing. *See* "Spinning, twisting."

Sluices:
Stoney, 550.
Goldsmith & Dilkes, 2041.
Hodgson, 2518.
Goldsmith & Dilkes, 3357.

Smelling bottles. *See* "Scent."

Smith's fires. *See* "Forges."

Smoke extractors. *See* "Flues."

Smoke prevention; burning and consuming smoke:
Boes, 34.
Anyon, 69.
Stell, 111.
Smith (*De Chodsko*), 124.
Erskine & Denby, 312.
Rydill, 329.
Joslin, 341.
Gall, 392.
Baker, 421.
Milburn, 463.
Stone, 496.
Lewis, 575.
Halmshaw, 596.
Stanley, 628.
Steer, 660.
Pilkington, 669.
Haseltine (*McCarty, Olds & Mason*), 681.
Rydill, 691.
Smith, 759.

Smoke prevention, &c.—*cont.*
Lake, 787.
Chappell, 796.
Mickle, 803.
Boes, 806.
Count d'Epineuil, 839.
Jukes, 845.
Woodcock, 864.
Radcliffe, 895.
Oglesby & Jackson, 897.
Mickle, 921.
Wright, 964.
Barling, 976.
Wolstencroft, 1020.
Wise, jun., 1098.
Williams, 1122.
Redmayne, 1185.
Spartali, 1206.
Hill, 1207.
Young, 1212.
Smith (*Meyn*), 1310.
Ecroyd & Wass, 1318.
Smyth, 1320.
Barker, 1321.
Day & Turner, 1328.
Giles, 1366.
Todd, 1389.
Rhodes, Rhodes & Frankland, 1436.
Haggett, 1461.
Smith, 1478.
Lloyd, 1480.
Griffin (*Griffin*), 1507.
Webster, 1534.
Bradbury, 1537.
Skelton & Mobberley, 1647.
Mickle, 1656.
Newbold, 1677.
Wirth (*Boschan*), 1692.
Lovibond, 1844.
Ray (*Heilmann*), 1960.
Lamb, 1966.
Milner, 1997.
Marley & Thompson, 2055.
Thomas & Piggott, 2107.
Cramp, 2179.
Horrocks, 2378.
Hurd & Simpson, 2594.
Sibert, 2612.
Rydill, 2634.
Dean, 2731.
Musgrave & Shillington, 2749.
Hatterslay, Messrs., & Ashley, 2862.
Crane, 3094.
Bligh, 3193.
Ritchie, 3227.
Ellis, 3311.
Medlen, 3426.
Wirth (*Boschan*), 3454.
Clough, 3460.
Stevenson, 3514.
Banks, 3539.
Hamer, 3682.
Hawkins, 3690.
Rydill, 3732.
Graham, 3734.
Harley, 3755.
Warren, 3765.
Nimmo, 3792.
Crestadoro, 3798.
Chipperfield, 3804.
Thompson, 3849.
Clarke, Clarke & Harrold, 3924.
Moore, 4019.
Spartali, 4090.
Akester, 4172.
Lloyd, 4235.
Hopkinson & Hopkinson, 4236.
Crosland, 4239.
Alleyn, 4256.
Cadett, 4263.

Smoothing or grinding stone. *See* "Grinding, polishing."

Smut-machines. *See* "Grain and seeds."

Snaps or portable connectors:
Reynolds, 2405.

Soap; soap boxes and tablets; detergents:
Haseltine (*Lloyd*), 2311.
Browne (*Berthoud*), 2331.

Soap, &c.—*cont.*
Gibbon, 2766.
Toner, 3054.
Hutchison, 3287.
White (*Lloyd*), 3310.
Johnson (*Eymael*), 3360.
Forman, 3493.
Thomas (*Persoz*), 3603.
De Lungo (*Tardani*), 3633.
Paget (*Béranger*), 3953.
Wilkinson, 4134.
Henry (*Destibeaux*), 4211.

Soapy waters (treating). *See* "Oils (animal)."

Socks. *See* "Stockings."

Soda. *See* "Alkalies."

Soda water. *See* "Aërating."

Softening and purifying water. *See* "Filtering."

Solitaires. *See* "Buttons."

Sorting and separating. *See* "Sifting."

Soundings (taking):
Fleury, 3309.
Poole, 3823.

Soup farina and ladles:
Huch, 288.
Johnson (*Maseron*), 3698.

Sowing seed:
Hodson, 93.
McDonald & Lenehan, 1113.
Dewar, 1432.
Wise (*Lefèbvre*), 1928.
Dening, 1958.
Willacy, 2198.
Tardioli, 2910.
Bonneville (*Couteau*), 2948.
Rainforth, sen., & Rainforth, jun., 3660.
Chambon, 3926.
Baxter (*Hollings*), 4059.

Spades and shovels:
Clark (*Dean*), 355.
Newton (*Lowman*), 1153.
Hughes (*Chillingworth*), 1779.
Batho (*Bruce*), 1809.
Barker, 2885.
Hughes (*Chillingworth*), 3696.
Batho & Hedderwick, 3708.

Spanners. *See* "Wrenches."

Spark arresters:
Lake (*Boschan*), 2355.
Johnson (*Richards, Wait, Shapley & Jones*), 3745.

Spears:
Nixon & Winterbottom, 1074.

Speed indicators. *See* "Indicating speed."

Spent tan employed as fuel. *See* "Fuel."

Spermaceti:
Cox & Cox, 214.

Spices (preserving):
Clark (*Howe*), 1428.
Lake (*Moorey*), 4089.

Spicing vinegar for pickling. *See* "Vinegar."

Spikes. *See* "Nails."

Spindles; spindles and flyers:
Johnson (*Pearl & Battles*) 18.
Wattles, 166.

**Spindles, &c.—*cont.***

Mewburn (*Dubreuil*), 410.
Laycock & Shuttleworth, 1078.
Shaw, 1324.
Brooks, Harrison & Goodbehere, 1804.
Higgins & Whitworth, 1174.
Boyd & Boyd, 2226.
Tweedale, 2267.
Wilkinson & Elce, 2301.
Mewburn (*Detraux*), 2323.
Becker & Jones, 2393.
Higgins & Whitworth, 2961.
Wirth (*Osenbrück*), 2991.
Ryo, Bros., & Emsley, 3066.
Lely, 3072.
Nott, 3265.
Kelley & Senior, 3397.
Raworth, 3411.
Wilkins, 3569.
Revell, 3709.
Hodgson & Lea, 3895.
Hall, 4022.
Thompson, Rhodes & Wain, 4246.

**Spinning (batting, opening, ginning and cleaning fibrous materials):**

Craven, 22.
Cardon-Wamain, son, 203.
Leach, 357.
Leach, 359.
Edwards & Taft, 373.
Dunn & Prangley, 420.
Johnson (*Purvis*), 733.
Johnson (*Purvis*), 734.
Bevan & Drew, 951.
Johnson (*Tito-Vignolo*), 1150.
Mannini, 1530.
Walton, 1683.
Barraclough, 1904.
Tatham, 1906.
Abel (*Von Loewis*), 1938.
Sirtaine, 2485.
Sault, 2504.
Deininger, 2601.
Dunn & Prangley, 2627.
Bevan, 2718.
Walker, 2879.
Haseltine (*Whitehead & Atherton*), 3047.
Graham, 3114.
Bevan, 3333.
Mc Glashan, 3465.
Blake, 3777.
Browne (*Alcan*), 4191.

**Spinning (carding, combing and heckling fibrous materials):**

Law & Law, 71.
Bonneville (*Martin*), 174.
Horner, 188.
Stone, 231.
Walton, 337.
Wittig, 339.
Leach, 357.
Kay & Mills, 379.
Foster, 384.
Mirfield & Scott, 423.
Hadwen & Randolph, 470.
Bayley & Cheetham, 475.
Shepherd & Scott, 554.
Chappell & Charlsworth, 555.
Turner & Baldwin, 604.
Henry (*Pinel & Lecœur*), 651.
Tongue, 670.
Naamith, 674.
Morgan-Brown (*Giacomini*), 687.
Leigh, 738.
Rushton, Morris & Bromiley, 797.
Little & Eastwood, 839.
Gilmore & Hodgson, 856.
Crighton, Messrs., 950.
Smith, Stake, Tolson, Firth & Bradley, 951.
Shepherd & Scott, 969.
Whitley, Hoyle & Haigh, 1016.
Fleming & Milner, 1085.
Holden, 1184.
Yates, Yates & Kellett, 1518.
Kelshaw, 1592.
Acton & Mustard, 1635.
Walton, 1683.
Murdoch (*Bède*), 1711.

**Spinning—*cont.***

Mirfield & Scott, 1726.
Barraclough, 1904.
Tatham, 1906.
Butchart, 1967.
Cotton, 2043.
Stafford, 2052.
Mirfield & Scott, 2082.
King, 2109.
Mitchell & Jordinson, 2173.
Whitehead & Whitehead, 2189.
Richardson, 2424.
Donisthorpe, Donisthorpe, Clarke, Snowden & Dearden, 2439.
Mills (*Bolette*), 2477.
Harding & Harding, 2499.
Smith (*Laviarde*), 2501.
Shaw, Sleath & Holt, 2596.
Openshaw, 2695.
Newton (*Todd*), 2821.
Walker, 2879.
Flitcroft, 2934.
Mulholland, 2937.
Johnson (*Rinck*), 3051.
Ryo, Bros., & Emsley, 3066.
Lowry & Gibson, 3261.
Tongue, 3304.
Walton, 3338.
Foxwell, 3545.
Mc Millan, 3600.
Tatham, 3668.
Imray (*Hämmerle*), 3704.
Tatham, 3743.
Thornton & Sons, 3794.
Lister, 3838.
Cunningham, 3962.
Tatham, 4097.
Roberts & Berry, 4119.
Ramsden, 4194.
Johnson (*Bailleux-Lemaire & Co.*), 4221.
Leach, 4223.
Mirfield & Scott, 4233.
Thompson, Rhodes & Wain, 4246.

**Spinning tobacco.** *See* "Tobacco."

**Spinning (twisting, doubling and throwing fibrous materials):**

Johnson (*Pearl & Battles*), 18.
Wattles, 166.
Bonneville (*Martin*), 174.
Unsworth, 195.
Hughes (*Snoeck & De Labarre*), 321.
Newton (*Potter & Lamb*), 340.
Mewburn (*Dubreuil*), 410.
Hadwen & Randolph, 470.
Kershaw, 549.
Humber & Haworth, 662.
Worth, 753.
Gillett, 754.
Rushton, Morris & Bromiley, 797.
Harling, Marsden, Chesterman, Chesterman & Guy, 818.
Greenwood, 927.
Ramsden & Ramsden, 961.
Thurlow, 968.
Wain, 1058.
Cocker, 1084.
Gedge (*Rocheblave, son.*), 1118.
Johnson (*Passieux*), 1151.
Morrison & Mitchell, 1198.
Chisholm, 1316.
Shaw, 1324.
Pearson, 1416.
Strange & Cornish, 1559.
Henchman, 1657.
Murdoch (*Bède*), 1711.
Brooks, Harrison & Goodbehere, 1804.
Murdoch (*Snakers*), 1863.
Higgins & Whitworth, 1874.
Sington (*Meunier*), 1889.
Smith, 1943.
Elce & Arundel, 1950.
Taylor & Newall, 1974.
Stubbs & Corrigan, 2201.
Asquith & Greenwood, 2213.
Carter, 2223.
Boyd & Boyd, 2226.
Bonneville (*Larché*), 2258.
Tweedale, 2267.
Wilkinson & Elce, 2301.
Mewburn (*Detraux*), 2323.

**Spinning—*cont.***

Lake (*Avery*), 2424.
Turner, 2533.
Sandiford, 2626.
Rushton & Tonge, 2770.
Horsman, 2883.
Whitehead, 2892.
Higgins & Whitworth, 2961.
Calvert, 2963.
Dodd, 3019.
Ryo, Bros., & Emsley, 3066.
Stubbs & Corrigan, 3122.
Unsworth, 3170.
Hodgkinson & Ardern, 3230.
Waugh & Waugh, 3366.
Welch, 3320.
Pilkington, 3321.
Whitehead, 3334.
Ermen & Ermen, 3396.
Kelley & Senior, 3397.
Raworth, 3411.
Midgley (*Cockcroft & Ackroyd*, 3438.
Jenkinson, 3463.
Ward, 3472.
Johnson, 3601.
Hetherington & Oldfield, 3620.
Revell, 3709.
Ripley, 3740.
Whiteley, 3802.
Marlin, 3825.
Hodgson & Lea, 3895.
Emsley, 4093.
Tatham, 4097.
Trafford, 4137.
Smith, 4236.
Thompson, Rhodes & Wain, 424.

**Spirits.** *See* "Distilling alcohol."

**Spittoons:**

Phillips, 4009.

**Splints.** *See* "Surgery."

**Splints (cutting).** *See* "Cutting wood."

**Sponge; sponge bags:**

Nisbet, 2111.
Sénéchal, 2928.

**Spongography.** *See* "Printing paper."

**Spools.** *See* "Bobbins."

**Spoons:**

Rhodes, 3517.
Johnson (*Maseros*), 3668.

**Spray producers:**

Rydill, 376.
Sambrook, 596.
Adams & Jenkins, 968.
Stewart, 1659.
Barraclough, 1904.
Cramp, 1955.
Tysoe, 2856.
Spartali, 4000.

**Springs:**

Leatham, 30.
Harrison & Conder, 32.
Gardiner, 37.
Burt, 57.
Lanier (*Genes*), 130.
Fawcett & Coulter, 158.
Barnett, 179.
Betteley & Sharer, 228.
Bernstein, 332.
Stirling, 374.
Cook, 406.
Western, 613.
Nicholson & Nicholson, 731.
Lake (*Gardiner*), 757.
Alley, 911.
White, 928.
Tallis, 1022.
Spencer & Smith, 1045.
Pulvermacher, 1067.
Carron, 1295.
Rochford, 1433.

**Springs—*cont.***
Spencer & Smith, 1433.
Spear, 1808.
Simon, 1848.
Curtis (*Haynes*), 1910.
Peile, 1923.
Humphries & Ridley, 1935.
Levi, 1963.
Wyatt, 1973.
Newton (*Lassoe & Meyer*), 1995.
Frank (*Eason*), 2020.
Quinzac, 2096.
Mills (*Timby*), 2127.
Davison, 2140.
Firth, 2141.
Browne (*Berthoud*), 2331.
Cramp, 2341.
Davies, 2345.
Brown, 2346.
Smith, 2351.
Nicholl, 2394.
Wilson, 2509.
Brownhill, 2605.
Hughes (*Peck*), 2670.
Lake (*Gardiner*), 2851.
Hallam, 2865.
Kingston, 3000.
Mewburn (*Pintsch*), 3101.
Leveaux, 3123.
Tuddenham, 3267.
Haseltine (*Lidgerwood*), 3344.
Sterne & Perkins, 3527.
Mills (*Burgess*), 3589.
Riviere, 3625.
Fletcher, 3789.
Duckham, 4197.

**Sprinkling:**
Chantrell, 499.
Speight, 2397.

**Spuds.** *See* "Tools."

**Squeezers.** *See* "Metals (forging)."

**Stable fittings:**
Cunliffe, 2802.
Wood & Howitt, 3093.

**Stacking and elevating straw:**
Watson, 137.
Tasker, 472.
Matthews, 947.
Tasker, 1253.
Andrews, 1275.
Cottrell, 2656.

**Stadiometers.** *See* "Mathematical instruments."

**Stages.** *See* "Theatre stages."

**Staining leather and paper; wood stains:**
Buncher, 1538.
Cumming, 2538.
Neville, 2918.
Newton (*Teysonnière*), 3176.

**Stairs; treads; stone steps:**
Pullicks, 477.
Stevenson, Ree & Dunlop, 3348.
Hyatt, 3684.

**Staking leather.** *See* "Leather."

**Stamping machines; hand stamps; stamping and ornamenting linen, paper, &c.:**
Capreell, 760.
Dunnett, 880.
Fish, 905.
Klüh, 1473.
Gough, 2106.
Macrone & Mackenzie, 2390.
Banks, 2468.
Sale & Martin, 3893.
Beasley, 3923.

**Stamping or shaping articles in metal, &c.:**
Newton (*Wilson, Miller & Folk*), 19.
Adames, 74.
Perman & Whitaker, 194.
Newton (*Lowman*), 1153.
Tinne, 1419.
Haggett, 1461.
Maxfield & Maxfield, 1926.
Marrian, 1929.
Dupont, 4060.

**Stamping ores.** *See* "Grinding ores."

**Stand pipes:**
Messenger, 4001.

**Starch:**
Weigelin, 1338.

**Starching fabrics, &c.:**
Davey, 722.
Stewart, 1659.

**Starting machinery; throwing into gear:**
Edwards & Taft, 373.
Morgan-Brown (*Thomas*), 612.
Black, 1307.
Savage, 1457.
Mills, 1607.
Krieger, 1768.
Haseltine (*Lee*), 2287.
Varley & Furness, 2324.
Friedlaender (*Moeller*), 2340.
Cohrs, 2830.
Mills (*Knous*), 2880.
Fisken, 3262.
Spill, 3650.
Whitaker, 4158.

**Station indicators.** *See* "Sign boards."

**Statuary.** *See* "Sculpture."

**Stays, corsets and bodices:**
Pulvermacher, 1067.
Pretty, jun., 2786.
Thomas, 2883.

**Steam-boiler feed-water heaters (protecting against the effects of frost):**
Wallis & Steevens, 919.

**Steam-boiler furnaces.** *See* "Furnaces."

**Steam-boiler gauges.** *See* "Gauges."

**Steam-boiler tubes (plugging and stopping leaky or burst):**
Sisson, 1888.
Martin, 3077.
Boaz, 3171.
Black, 3325.
Rooke, 3549.

**Steam-boilers and generators; generating and superheating steam:**
Allibon & Manbré, 2.
Stroudley & Drummond, 6.
Leatham, 30.
Lowe, 36.
Welch, 51.
Walker, jun., 58.
Smith (*De Chodzko*), 124.
Asbury, 139.
Salmon, 147.
Kesterton, 253.
Fairbairn & Beeley, 270.
Imray (*Quimbel*), 309.
Erskine & Denby, 312.
Hart, 315.
Rydill, 329.
Hosking, 343.
Simon (*Büttner*), 412.
Kux, 422.

**Steam-boilers, &c.—*cont.***
Hedges, 436.
Shaw, 455.
Lake (*Shedd*), 473.
Nangle, 495.
Barff (*Kidd*), 520.
Lake (*Ritchell*), 558.
Emmens, 576.
Payton, 621.
Lake (*Proudfoot*), 634.
Lake (*Proudfoot*), 635.
Stanley, 654.
Haseltine (*McCarty, Olds & Mason*), 681.
Smith & Brierley, 689.
Rydill, 691.
Robertson, 708.
Lancaster and Swindells, 714.
Spencer & Smith, 715.
Spence, 774.
Grimston, 792.
Taylor, 794.
Boes, 808.
Watson, 824.
Jukes, 845.
Horner & Dobson, 862.
Ramsden, 873.
Stanley, 889.
Adamson, 900.
Wood, 901.
Head, 923.
Wright, 964.
Gardner, 985.
Barclay, 990.
Moy & Shill, 1005.
Lake (*Cochrane*), 1021.
Heinemann, 1061.
Skoines, 1086.
Johnson (*Riot & Roux*), 1089.
Shuttleworth, 1125.
Shaw & Hunter, 1145.
Heyworth & Wilkinson, 1147.
Babcock & Wilcox, 1154.
Mitchell, 1203.
Howard & Bousfield, 1237.
Crosland, 1249.
Jobson, 1258.
Melling, 1260.
Leach, 1281.
Brown & Biddell, 1301.
Smith (*Meyn*), 1310.
Davey, 1315.
Day & Turner, 1328.
Petherick & Rock, 1364.
Black, 1368.
Rochford, 1433.
Haggett, 1461.
Smith, 1478.
Oldham, jun., 1531.
Blondel & Bruneau, 1553.
Wotherspoon, 1600.
Fitzgerald, 1619.
Wigzell & Pollit, 1627.
Gooder, 1674.
Hargreaves, 1675.
Wyse, 1733.
Howatson, 1742.
Botterill, Botterill, jun., & Wolstenholme, 1744.
Huntington, 1753.
Williams, 1773.
Smith, 1803.
Spear, 1808.
Lee, 1829.
Shepherd, 1849.
Heyworth & Wilkinson, 1890.
Curtis (*Mills*), 1924.
Stanley, 1948.
Ray (*Heilmann*), 1960.
Cockburn, 1980.
Hacking, 1994.
Newton (*Lassoe & Meyer*), 1995.
Melling, 1996.
Handyside, 2013.
Horner & Dobson, 2037.
Hughes (*Fairbanks*), 2045.
Wise (*Riot & Roux*), 2135.
Davison, 2140.
Nimmo, 2162.
Griffith, 2170.
Cramp, 2179.
Mapplebeck, 2216.
Wright, 2243.
Lloyd, 2265.
Lake (*Boschan*), 2355.
Lee, jun., 2370.

**Steam-boilers, &c.—*cont.***

Salmon, 2419.
Harwood, Harwood, Scholes & Seymour, 2452.
Garey & Turner, 2493.
Kesterton, 2497.
Newton (*Pastré*), 2511.
Tongue (*Merrill*), 2558.
Hurd & Simpson, 2594.
Sibert, 2612.
Crosland, 2614.
Tillott, 2615.
Rydill, 2634.
Barber & Ingham (*Burns*), 2711.
Spartali, 2712.
Smith, 2787.
Housley, 2814.
Hallam, 2865.
Shanks & Thyne, 2869.
Sutcliffe, 2897.
Wilson, 2954.
Newton (*Babbitt*), 2962.
Cock (*Cook*), 3027.
Bourry, 3046.
Gardner (*Gigodot*), 3053.
Sanderson & Proctor, 3062.
Massey & Hill, 3313.
Noble, 3335.
Napier, 3357.
Trossin, 3401.
Pope, 3405.
Adams, 3435.
Bustard, 3533.
Sanderson, Messrs., 3546.
Baillie, 3558.
Melling, 3622.
Hyatt, 3684.
Sinclair, 3693.
Rydill, 3732.
Munts & Sharp, 3741.
Johnson (*Richards, Watt, Shapley & Jones*), 3745.
Moore, 3774.
Twibill, 3791.
Ramsden, 3796.
Allibon & Manbré, 3908.
Stuart, Jagger, Smith & Pilling, 3963.
Read, 4016.
Taylor, 4021.
Galloway & Beckwith, 4036.
Davies & Dawson, 4064.
Spartali, 4090.
Spartali, 4091.
Haseltine (*Lindsay*), 4113.
Heyworth & Wilkinson, 4125.
Richardson, 4150.
Samson & Parker, 4175.
Spice, 4178.
Gillett, 4180.
Firth & Senior, 4182.
Lloyd, 4235.
Hopkinson & Hopkinson, 4236.
Clark (*Douglass*), 4247.
Alleyn, 4256.
Lord, 4269.
Power, 4271.

**Steam-boilers (cleansing and preventing incrustation of):**

Salmon, 147.
Bullock, 171.
Fairbairn & Beeley, 270.
Hatfull, 281.
Rydill, 376.
Simon (*Büttner*), 412.
Burfitt, 538.
Hutchison & Bridges, 551.
Henderson (*Demailly*), 591.
Lee & Pringle, 594.
Körting, 626.
Lake (*Cochrane*), 1021.
Johnson (*Riot & Roux*), 1069.
Shaw & Hunter, 1145.
Willis, 1269.
Sieber, 1317.
Griffin (*Griffin*), 1507.
Nolden, 1553.
Gooder, 1674.
Botterill, Botterill, jun., & Wolstenholme, 1744.
Curtis (*Mills*), 1924.
Horner & Dobson, 2087.
Ray, 2122.
Payne, 2234.

**Steam-boilers—*cont.***

Field, 2254.
Lake (*Brownell*), 2302.
Salmon, 2419.
Fisher, 2435.
Wilson, 2509.
Casper (*Farinaux*), 2602.
Sibert, 2612.
Théry, 2742.
Paxman, 3024.
Sutcliffe, 3132.
Massey & Hill, 3313.
Black, 3326.
Sanderson, Messrs., 3546.
Sinclair, 3693.
Vaughan (*Bernhard*), 3771.
Twibill, 3791.
Paget (*Bérenger*), 3963.
Morgan, 4061.
Richardson, 4150.
Esplen, 4189.
Logan, 4273.

**Steam-boilers (coverings for):**

Fish, 924.
Gilbert, 2029.
Hyatt, 3256.
Hyatt 3684.

**Steam-boilers (preventing priming):**

Clark (*Audouin & Pelouze*), 109.
Asbury, 139.
Fairbairn & Beeley, 270.
Tillott, 2615.
Massey & Hill, 3313.
Morgan, 4061.

**Steam-boilers (water feeding and heating):**

Baynes, 78.
Konn (*Lodighin*), 91.
Imray (*Quimbel*), 309.
Erskine & Denby, 312.
Hart, 315.
Silber, 334.
Olley & Jackson, 338.
Bennett, 367.
Rydill, 376.
Andrews, 404.
Simon (*Büttner*), 412.
Kux, 422.
Henderson (*Demailly*), 591.
Sambrook, 596.
Körting, 626.
Rydill, 691.
Green, 747.
Mayes, 838.
Holt, 876.
Wallis & Steevens, 919.
Cook, 986.
Heinemann, 1061.
Nield, 1109.
Shaw & Hunter, 1145.
Davies, 1160.
Howard & Bousfield, 1237.
Jobson, 1258.
Willis, 1269.
Black, 1368.
Dixon, 1400.
Thomas & Nightscales, 1454.
Oldham, jun., 1531.
Nolden, 1553.
Williamson & Parsell, 1595.
Steen, 1626.
Clark (*Colacicchi*), 1640.
Botterill, Botterill, jun., & Wolstenholme, 1744.
Huntington, 1753.
Wood & Clarke (*Harrison*), 1772.
Bousfield (*Bickemeyer*), 1794.
Shepherd, 1849.
Davis, 1861.
Stanley, 1946.
Simpson, 1949.
Lamb, 1966.
Beams, 2028.
Horner & Dobson, 2087.
Hughes (*Fairbanks*), 2045.
Paxman, 2150.
Clark (*De Bardel*), 2205.
Sturgeon, 2279.
Bonneville (*Grüninger*), 2305.
Cain, 2363.

**Steam-boilers—*cont.***

Johnson (*Sellers & Sellers*), 2461.
Hurd & Simpson, 2594.
Casper (*Farinaux*), 2602.
Douds & Hartnuff, 2649.
Carey, 2680.
Hampton, 2699.
Spartali, 2712.
Smith, 2787.
Arnold, 2837.
Sutcliffe, 2897.
Davies & Walker, 2914.
Bourget, 2935.
Walker, 3017.
Paxman, 3024.
Sutcliffe, 3132.
Hydes & Bennett, 3242.
Massey & Hill, 3313.
Noble, 3335.
Galloway, 3369.
Hamilton, 3462.
Worth, 3478.
Bower & Bower, 3528.
Sanderson, Messrs., 3546.
Lange, 3571.
Haseltine (*Henderson*), 3632.
Sinclair, 3693.
Moore, 3774.
Twibill, 3791.
Ramsden, 3796.
Tasker, 3800.
Reader, 3815.
Todd, 4056.
Davies & Dawson, 4064.
Bernadac, 4067.
Spartali, 4090.
Richardson, 4126.
Gillett, 4180.
Esplen, 4189.

**Steam-engine packing.** *See* "Packing."

**Steam-engine tenders (supplying with water).** *See* "Water cranes."

**Steam-engines (stationary, locomotive and marine):**

Clark (*Audouin & Pelouze*), 109.
Salmon, 147.
Milner, 196.
Stead, 249.
Foster, 253.
Newton (*Burdon*), 257.
Sudlow, 272.
Brotherhood, 287.
Erskine & Denby, 312.
Rydill, 329.
Rydill, 376.
Hedges, 436.
Robertson, 448.
Lake (*Blake*), 453.
Lake (*Blake*), 454.
Shaw, 455.
Nangle, 495.
Johnson (*Kitson & Carr*), 531.
Edwards, 541.
Adams, 563.
Wood, 578.
Lee & Pringle, 594.
Clark (*Gardner*), 606.
Körting, 626.
Farey, 644.
Rydill, 691.
Grimston, 792.
Allcock, 816.
Allfrey, 830.
Tatham, 832.
Holt, 876.
Alley, 911.
Head, 923.
Adams & Jenkins, 963.
Cook, 986.
Moy & Shill, 1006.
Grange, 1032.
Spencer & Smith, 1046.
Mc Elroy, 1106.
West, 1153.
Darlington, 1168.
Johnson (*Ulery*), 1224.
Brown & Biddell, 1301.
Critchlow, 1351.

**Steam-engines—*cont.***
Clayton & Shuttleworth, 1358.
Black, 1367.
Johnson & Shaw, 1372.
Benson (*Cope & Maxwell*), 1387.
Todd, 1389.
Casper (*Farinaux*), 1405.
Tinne, 1419.
Asquith, 1424.
De Negri, 1437.
Hülsenberg, 1441.
Savage, 1457.
Burnett, 1493.
Ashworth, 1569.
Williamson & Parsell, 1595.
Wotherspoon, 1600.
Ochwadt, 1601.
Mills, 1607.
Galloway & Beckwith, 1620.
Wood, 1643.
Ryder & Brémond, 1698.
Finnegan, 1727.
Savage, 1730.
Bousfield (*Eickemeyer*), 1794.
Lee, 1829.
Murdoch (*Bede & Co. & Farcot & Sons*), 1862.
Curtis (*Mille*), 1924.
Simpson, 1949.
Martin, 1953.
Brotherhood, 2003.
Handyside, 2013.
Gilbert, 2029.
Colebrook, 2033.
Gerring, 2044.
Bennett, 2046.
Bridgett, 2073.
Robson, 2096.
Higginson, 2104.
Barrow, 2154.
Colebrook, 2164.
Cramp, 2179.
Cramp, 2180.
Samuelson, 2186.
Brookes (*Geisenberger & Cherpit*), 2188.
Payne, 2224.
Rowan, 2233.
Rome, 2250.
Haseltine (*Tessenyman & Howard*), 2255.
Newton (*Babbitt*), 2271.
Bonneville (*Grünsinger*), 2305.
Mennons (*De Teleschaff*), 2310.
Inglis & Spencer, 2325.
Spencer, 2326.
Greey, 2338.
Brown, 2346.
Haseltine (*Eayrs & Stuart*), 2354.
Moore, 2373.
Wirth (*Scheller & Berchtold*), 2380.
Muir & Caldwell, 2381.
Gedge (*Préville*), 2396.
Alley, 2409.
Salmon, 2419.
Hoyois, 2490.
Wirth (*Kernaul*), 2494.
Tongue (*Merrill*), 2560.
Brunton, 2573.
Black, 2580.
Hurd & Simpson, 2594.
Kirkman, 2636.
Watson & Pegler, 2637.
Carey, 2680.
Renshaw, 2692.
Hill, 2710.
Lowe, 2717.
Clarke & Turner, 2726.
Johnson (*Lobdell*), 2750.
Lake (*Parvin & Overman*), 2758.
Jones, 2797.
Macintosh, 2844.
Roebuck & Lamb, 2863.
Henry (*Depres*), 2876.
Haseltine (*Bass*), 2905.
Fardon, 2927.
Haseltine (*Hoyt*), 2943.
Bonneville (*Schenck & Maurer*), 2966.
Johnson (*Henry*), 2975.
Martin, 2990.
Mott, 3028.
Johnson (*Stevens, Steele & Condict*), 3052.
Johnson (*Kitson & Carr*), 3059.
Moy, 3068.

**Steam-engines—*cont.***
Rogers, 3158.
Baldwin, 3161.
Forbes & Hamilton, 3162.
Allcock, 3209.
McCarter, 3214.
Cleminson, 3215.
Harrop, 3219.
Haseltine (*Hamilton*), 3258.
Petrie, 3263.
Davidson & Williams, 3286.
Thomas, 3328.
Hughes (*Henrard & Raymond*), 3340.
Haseltine (*Lidgerwood*), 3344.
Trossin, 3401.
Hamilton, 3402.
Pope, 3405.
Barcroft, 3428.
Temple, 3429.
Earl of Caithness, 3433.
Chadburn, 3434.
Haseltine (*Wyss & Studer*), 3487.
Walker, Messrs., 3501.
Boyman, 3515.
Sterne & Perkins, 3527.
Bower & Bower, 3528.
Lake (*Rourk*), 3553.
Hyatt, 3684.
Holman, 3699.
Revell, 3709.
Ashworth, 3719.
Webb, 3748.
Tasker, 3890.
Anderson & Harrison, 3812.
Render, 3815.
Robinson, 3850.
Wilson, 3883.
Hutchison, 3894.
Davis, 3995.
Southwood & Mathews, 4002.
Todd, 4056.
Neill & Neill, 4058.
Morgan, 4061.
Johnson (*Schmid*), 4071.
Browne (*Dreyfus*), 4072.
Moy, 4078.
Handyside, 4124.
Richardson, 4136.
Clarke & Walker, 4149.
Heaton & Heaton, 4174.
Esplen, 4189.
Duckham, 4197.
Hyatt, 4241.

**Steam greasers.** *See* "Oiling."

**Steam hammers.** *See* "Hammers."

**Steam jets.** *See* "Tuyeres."

**Steam pipes (clearing).** *See* "Tube cleaners."

**Steam ploughs.** *See* "Ploughs."

**Steam pumps.** *See* "Pumps."

**Steam reaping or mowing.** *See* "Reaping."

**Steam traps:**
Paterson, jun., 365.
Worroll, 826.
Kidd (*Hawes*), 2097.
Worroll, 2908.
Imray (*Peyer*), 3350.

**Stearine:**
Brin, 3477.

**Steering and guiding balloons.** *See* "Aërial-machines."

**Steering and guiding engines:**
Muir & Caldwell, 2381.
Spill, 3650.

**Steering and guiding ploughs, &c.:**
Tasker, 746.
Baker & Cox, 1731.
Gedge (*De Larret*), 1907.
Randell & Randell, 1998.
Curror, 2006.

**Steering and guiding ships:**
Jaynor, 66.
Canning, 120.
Quintavalle & Pratt, 150.
Jarman, 164.
Mills (*Cathcart & Napley*), 481.
Haseltine (*Dodge*), 516.
Mac Cunn, 801.
Thomson, 885.
Atkin, 1361.
Pattison, 1650.
Cameron & Hastie, 2613.
Paul, 2651.
Oswald, 2744.
Nickoll, 2796.
Jones, 2995.
Harrington, 3341.
Hayes, 3534.
Lake (*Rourk*), 3553.

**Stench traps.** *See* "Traps."

**Stencil plates:**
Betts, 2611.

**Stereoscopes; stereoscopic views:**
Gedge (*Dullemagne & Triboulet*), 1143.
Hodgson, 2122.

**Stereotyping.** *See* "Printing."

**Stethoscopes.** *See* "Surgery."

**Stills (heating):**
Robertson, 708.
Harvey, 3416.

**Stirring.** *See* "Mixing."

**Stockings or hose:**
Lamb & Lowe, 73.
Rudolph, 888.
Morris, 1033.
Bartlett, 1567.
Cooper, Clarke, Donisthorpe & Corah, 3113.
Griswold, 3257.

**Stocks for cutting screw threads.** *See* "Screws."

**Stone, slate and marble; millstones:**
Lyttle, 52.
Gay, 95.
Hindley, 178.
Haseltine (*Dean*), 259.
Bonneville (*Schenck & Hayek*), 316.
Sears, 349.
Clark (*Laurette*), 368.
Bodmer, 590.
Gabriel, 638.
Rowbotham & Richardson, 684.
Smith, 755.
Smith, 759.
Martin, 1070.
Forbes, 1204.
Forbes, 1407.
Bousfield (*Lewis*), 1443.
Haggett, 1461.
Lish, 1621.
Mellor, 1767.
Plunkett, 1789.
Forbes, 1816.
Forbes, 1832.
Whitmore, 1871.
Clark (*Stacy*), 2012.
Gabriel, 2024.
Robbins, 2116.
Ramonson, 2526.
Stone, 2678.
Andrews, 2721.
Tall, 2733.
Darby & Hobrow, 2858.
Fottrell, 3086.
Mewburn (*Arntz*), 3100.
Forbes, 3205.
Stevenson, Ree & Dunlop, 3248
Wood, 3255.
Hyatt, 3684.
Forbes, 3783.
Hyatt, 3783.
Thompson, 4052.

Stone, &c.—*cont.*
Johnson (*Cottrell*), 4102.
Holland, 4216.
Hyatt, 4241.

Stone breakers:
Smith, 23.
Pilkington, 1776.
Ellison, 2429.
Stone, 2678.
Smith, jun., 2964.
Ball, 3030.
Ord & Maddison, 3249.
Goodman, 3361.
Hyde & Hyde, 3649.

Stop motions; retarding motion; throwing out of gear:
Lake (*Blake*), 227.
Edwards & Taft, 373.
Bayley & Cheetham, 475.
Richards, 518.
Wood, 578.
Morgan-Brown (*Thomas*), 612.
Wyatt, 652.
Densmore & Farnham, 668.
Nasmith, 674.
Little & Eastwood, 839.
Holt, 876.
Griffin (*Babbett, Miles & Hickey*), 906.
Wibberley, 955.
Tongue (*Lufbery*), 973.
Thurlow, 988.
Parkinson, 1075.
Brookes (*Wattinne & Roettger*), 1357.
Strange & Cornish, 1559.
Mills, 1607.
Wood, 1682.
Lightowler & Barraclough, 1841.
Thompson, Thompson & Hodgson, 1842.
Higgins & Whitworth, 1874.
Whalley, 1984.
Dargue, 2036.
Gough, 2106.
Fowler, 2137.
Stubbs & Corrigan, 2201.
Boyd & Boyd, 2226.
Singleton, 2244.
Haseltine (*Lee*), 2287.
Mewburn (*Detraux*), 2323.
Varley & Furness, 2324.
Friedlaender (*Moeller*), 2340.
Schmidt, 2376.
Richmond, 2551.
Ball & Jowett, 2610.
Darby & Hobrow, 2858.
Walker, 2879.
Mills (*Knous*), 2880.
Flitcroft, 2934.
Higgins & Whitworth, 2961.
Johnson (*Henry*), 2975.
Richardson, 3010.
Dodd, 3019.
Weston, 3023.
Stubbs & Corrigan, 3122.
Unsworth, 3170.
Mills (*Stiles*), 3210.
Fisken, 3262.
Welch, 3320.
Robertson, Orchar, Muir & Mc Ilwham, 3427.
Midgley (*Cockcroft & Ackroyd*), 3438.
Jenkinson, 3463.
Walmsley, 3779.
Lockwood & Chappell, 4024.
Haseltine (*Gates*), 4051.
Baxter (*Hollings*), 4059.
Gedge (*Alminana & Sarkissian & Gigaroff*), 4121.
Trafford, 4137.
Whitaker, 4158.
Singleton, 4244.
Walker, jun., 4281.

Stoppers for bottles. *See* "Bottle stoppers."

Stoppers for tubes. *See* "Tube expanders and stoppers."

Stopping runaway horses. *See* "Harness."

Stopping teeth. *See* "Dentistry."

Stopping tubes. *See* "Tube expanders and stoppers."

Stove polishes (liquid). *See* "Polishes (liquid)."

Stoves. *See* "Fire-places."

Stoving or heating tobacco. *See* "Tobacco."

Strainer plates for paper making. *See* "Paper."

Straining. *See* "Filtering."

Straps and bands for harness, &c. fastening straps:
Haddan (*Fairman*), 1157.
Marshall, 1189.
Lott, 1605.

Straps (chin and head):
Pulvermacher, 1067.

Straps or bands for driving machinery. *See* "Bands."

Straw elevators. *See* "Stacking."

Straw from stable manure (cleansing for re-use):
McDougall, 542.

Straw plait (washing and drying):
Salisbury, 3394.

Straw shakers for thrashing machines. *See* "Thrashing."

Streams of water (cleansing):
Pengilly, 563.

Street indicators. *See* "Sign boards."

Stretching boots and shoes. *See* "Boots."

Strong rooms. *See* "Buildings."

Strontia:
Hughes (*Daudenart & Verbert*), 938.
Hughes (*Daudenart & Verbert*), 939.
Hughes (*Daudenart & Verbert*), 3013.
Hughes (*Daudenart & Verbert*), 3014.

Strophometers. *See* "Indicating speed."

Studs. *See* "Buttons."

Stuffing boxes:
Lake (*Krausse*), 80.
Sholl, 525.
Edwards, 541.
Fish, 884.
Turner, 1011.
Casper (*Farinaux*), 1405.
Wotherspoon, 1600.
Hunt (*Glanding, Wilson & Johnson*), 1791.
Kirkman, 2636.
Watson & Pegler, 2637.
Clarke & Turner, 2726.
Maass & Flos, 3339.
Pope, 3405.
Sutcliffe & Sutcliffe, 3679.

Submarine works; aquatic buildings:
Paddison, 193.
Napier, 246.
Bonneville (*Schenck & Hayek*), 310.
Redman, 732.
Debenham, 975.
Sauvée (*Zouboff & Grounmore*), 1487.
Batho (*Bruce*), 1869.
Milroy, 2228.
Robertson, 2684.
Rowan, 3665.
Batho & Hedderwick, 3708.
Rahtjen, 3920.

Sugar; syrups; sugar mills; filling sugar casks:
Spence, 50.
Imray, 325.
Neill, 377.
Hays & Hays, 437.
Chanel, 614.
Henry (*De Savignon*), 667.
Clark (*Marguerite*), 682.
Tommasi, 696.
Miller, 925.
Watson & Robertson, 974.
Pearse, 1044.
Morgan-Brown (*Hersey, Hersey & Gray*), 1233.
Imray (*Luton & Lefevre*), 1724.
Pilkington, 1776.
Halpin & Alliott, 2039.
Barrow, 2154.
Haseltine (*Lloyd*), 2311.
Clark (*Marguerite*), 2413.
Cole, 2418.
Moline & Stock, 2853.
Smith, jun., 2964.
Marsden, 3018.
Tamin, 3151.
Johnson (*Eymael*), 3369.
Newton (*Boudouin*), 3548.
Speir, 3726.
Johnson (*De Meritens & Krauser*), 3937.
Collet, De Lavillasse & Trotud de Beauregard, 4166.

Sulphur:
Croll & Dalgairns, 2608.
Harcourt & Fison, 2685.
Freestone & Humphris, 2729.
Johnson, 2891.
Haseltine (*Kirk & Griffith*), 2904.
Smith, 3573.
O'Shea, 4153.

Sulphuret of carbon:
Clark (*Audouin & Pelouze*), 109.
Bentley & Garth, 145.
Cox & Cox, 214.
Lake (*Wells*), 1922.
Curtis (*Mills*), 1924.
Freestone & Humphris, 2729.
Johnson, 2891.

Sulphurets (concentrating and saving):
Peer, Lundquist & Rutherford, 3847.

Sulphuretted hydrogen. *See* "Gas."

Summer-houses. *See* "Tents."

Sunken vessels (compounds for blowing up):
Brain, 2984.

Sunken vessels (raising). *See* "Raising ships."

Sunshades. *See* "Umbrellas."

Superheating steam. *See* "Steam-boilers."

Surfacing mill and other stones. *See* "Cutting stone."

Surfacing roads. *See* "Road making."

Surgery:
Coxeter, 302.
Arnold, 777.
Hawksley, 1353.
Hawksley, 1354.
Mayer, 2371.
Arnold, 2516.
Clark (*Drague*), 3167.
Malone, 3811.
Messenger, 4001.

Swedging and forging. *See* "Metals (forging)."

Sweeping roads. *See* "Roads (cleansing)."

Swimming saloons:
Rae, 1902.
Perrett, 4249.

Swivels:
Corbett, 2604.
Lely, 3072.
Smith, 3710.

Swords; matchets; scabbards:
Nixon & Winterbottom, 1074.
Lake (*Brownell*), 2302.

Syringes:
Blundell, 2344.

Syrups. *See* "Sugar."

T.

Table cloths or covers:
Heaven, 1069.
Henson, 1580.
Hansauer, 2745.
Hyatt, 3256.
Brown, 3858.

Table mats. *See* "Mats."

Tablets:
Tongue (*Suzanne*), 140.
Rowbotham & Richardson, 684.
Robbins, 2116.

Tacks. *See* "Nails."

Tail docking sheep, &c. *See* "Medical treatment of animals."

Take-up motion in looms:
Knowles & Barnes, 105.
Griffin (*Babbett, Miles & Hickey*), 908.
Holden & Woodacre, 3259.
Haseltine (*Gates*), 4051.

Tallow:
Featherstonhaugh, 3289.

Tally or counting apparatus. *See* "Counting."

Tankards. *See* "Drinking vessels."

Tanning skins. *See* "Leather."

Tape band:
Oldknow, 24.
Oldknow, 771.

Tape looms. *See* "Weaving."

Tapers and waxlights:
Clark (*Grawitz*), 703.

Tapestry:
Larue, 172.

Taps. *See* "Cocks."

Tar:
Clark (*Audouin & Pelouze*), 109.
Williams, 205.
Rowley, 853.
Clark (*Challeton*), 945.
Hey & Sugden, 1276.
Graham, 2245.
Fyfe & Bowers, 2873.
Kennelly, 3052.

Targets:
Whichcord & Anderson, 2048.

Tarpaulings:
Lake (*Barton*), 540.
Newton, 1007.
Macintosh, 2844.
Wilkinson, 3083.

Tartaric acid. *See* "Acids."

Tea kettles. *See* "Kettles."

Tea (mixing and preserving):
Pumphrey, 936.
Clark (*Howe*), 1423.
Lake (*Moorey*), 4089.

Tea pots, caddies, services and cosies:
Newell, 514.
Bates, 1294.
Maxfield & Maxfield, 1926.
D'Humy, 2465.
Hyatt, 3256.
Rhodes, 3517.
Hyatt, 3684.

Teaching music, writing, drawing and other arts:
Tongue (*Suzanne*), 140.
Lerina, 1444.
Henderson (*Dubreuil*), 2783.
Adams, 2878.
Seward & Phillips, 3613.
Clark (*Bellour & Carbonel*), 4248.

Teats. *See* "Feeding bottles."

Teazles. *See* "Finishing."

Telegraph cables (raising submarine). *See* "Grapnels."

Telegraphic printing:
Hunt (*Anders & Welch*), 40.
Jensen (*Olsen*), 149.
Barney, 861.
Spence (*Girarbon*), 1188.
Coddington (*Gally*), 1395.
Lake (*Coffee*), 1554.
Fisk (*Bauer & Kreb*), 1584.
Jaynor, 1684.
Thomson & Jenkin, 2086.
Little, 2133.
Siemens (*Siemens & Alteneck*), 2225.
Zanni, 2266.
Phelps, 2430.
Davies & Higgins, 2576.
Edison, 2988.
Clark (*Sawyer & Smith*), 3317.
Neale, 4143.

Telegraphs (electric):
Kesterton, 54.
Robinson, 67.
Highton, 85.
Preece, 153.
Lee & Rogers, 190.
Johnson (*Digney, Digney, Lartigue & Forest*), 247.
Elmsley, 251.
Bernstein, 332.
Bernstein, 333.
Lake (*Johnson*), 371.
Clark (*Tessa, Lartigue & Prud'homme*), 490.
Highton, 545.
Wilde, 618.
Edison, 735.
Winter, 761.

Telegraphs (electric)—*cont.*
Welch, 778.
Barney, 785.
Lyttle, 791.
Baines, 820.
Barney, 861.
Highton, 1178.
Spence (*Girarbon*), 1188.
Smellie, 1194.
Lyttle, 1434.
Edison, 1508.
Jacquemin, jun., 1663.
Jaynor, 1684.
Bailey, 1706.
Harrison, 1717.
Crispin, 1797.
Tyer, 1845.
Rowett, 2077.
Thomson & Jenkin, 2086.
Garrard, 2090.
Bonneville (*Radde*), 2091.
Greer, 2101.
Fitz-Gerald & Molloy, 2103.
Little, 2133.
Siemens (*Siemens & Alteneck*), 2225.
Varley, 2232.
Lake (*Brownell*), 2302.
Browne (*O'Lawlor*), 2327.
Moffatt, 2386.
Spagnoletti, 2401.
Mewburn (*Hatzfeld*), 2411.
Leech (*Malpas*), 2567.
Walker, 2563.
Lake (*Pope*), 2656.
Hornstedt, 2808.
Stearns, 2870.
Moseley, 2969.
Wilkinson, 3083.
Fottrell, 3086.
Wirth (*Beine*), 3194.
Haseltine (*Hall & Van Blarcom*), 3290.
Clark (*Sawyer & Smith*), 3317.
Johnson (*Galliand & Breittmayer*), 3375.
Dunk, 3436.
Hooper, 3780.
Gray, 3862.
Gray, 3863.
Stearns, 3879.
Verdeau, 3943.
Hooper & Dunlop, 3997.
Rowett, 4079.
Neale, 4143.
Madsen, 4167.
De Capanema, 4171.
Rubery, 4193.
Highton, 4277.

Telegraphs (mechanical, pneumatic and automatic):
Canning, 120.
Guattari, 453.
Jaynor, 1012.
Morgan-Brown (*Toselli*), 1440.
Canning & Mayor, 2554.
Jaynor, 2577.
Edgerton, Hordley & Newton, 3772.

Telegraphs (ships'). *See* "Signals."

Telescopes:
Cooke & Emary, 2445.

Telltales:
Emslie & Emslie, 2309.

Templets (mechanical):
Clark (*Drague*), 3167.

Tents; marquees; summer-houses:
Lake (*Barton*), 540.
Mapleson, 858.
Gedge (*Cousette*), 1418.
Wintour, 2032.
Garrard, 2090.
Newton (*Fleetwood*), 2388.
Ritchie, 3149.

Terne plates. *See* "Coating metals."

Terra cotta:
Smith, 759.
Robbins, 2116.

Terry and pile fabrics. *See* "Weaving carpets."

Tesseræ:
Noad, 539.

Testing cork:
Salleron, 508.

Testing strength, elasticity and ductility of wood, iron, &c.:
Varley & Furness, 2324.
Duckham, 4197.

Tethering horses:
Garrard, 2090.

Theatres; theatre stages:
Grieve, 294.
Rae, 1802.

Theatrical and scientific exhibitions:
Wells, 219.
Morris, 2163.
Edwards, 2888.

Thermometers; pyrometers:
Arnold, 777.
Newton (*Grech*), 1172.
Hobson, 1271.
Mayer, 2371.
Smith (*Tremeschini et Cie.*), 2671.
Negretti & Zambra, 3091.
Symington, 3482.
Hicks, 3647.
Pinney, 3908.
Casella & Denton, 4219.

Thinning turnips, carrots, &c. *See* "Ploughing."

Thrashing machines:
Watson, 137.
Brotherhood, 287.
Marshall, Messrs., 601.
Clayton & Shuttleworth, 1914.
Humphries & Ridley, 1935.
Goucher, 2674.
Lake (*Moncomble-Carly*), 4112.

Thread; sewing-cotton:
Unsworth, 195.
Hughes (*Snocck & De Labarre*), 321.
Chamas, Bouju & Bouju, 1208.
Wood, 1202.
Campana (*Pistoresi*), 2105.
Ermen & Ermen, 3184.
Raworth, 3411.
Crawford & Crawford, 3694.

Throwing fibrous materials. *See* "Spinning, twisting."

Throwing out of gear. *See* "Stop motions."

Ticketing and marking shop goods:
Clark (*Hannart & Mamelzer*), 397.
Newport, 3007.

Tickets; ticket holders:
Clark (*Hannart & Mamelzer*), 397.
Sampson, 1097.
Anderson, 1200.
Riviere, 3625.

Tiles. *See* "Bricks."

Tilling land. *See* "Ploughing."

Time-keepers. *See* "Clocks."

Tin and terne plates. *See* "Coating metals."

Tin foil:
Johnson (*Masson*), 406.

Tin plate articles (ornamenting). *See* "Ornamenting."

Tin plate scraps (utilizing):
Gutensohn, 258.
Robinson, 1708.
Hauberg, 2775.
Zenger, 3384.
Haseltine (*Ricketts*), 4070.

Tinder (German) holders:
Doe, 3818.

Tins (opening). *See* "Opening tins."

Tipping carts. *See* "Carriages (loading, &c.)."

Tipping or finishing fabrics. *See* "Finishing."

Tips for shoes. *See* "Boots."

Tobacco, cigars and smoking apparatus:
Caton, 401.
Donath & Jasper, 407.
Prince (*Flinsch*), 440.
Pilon, 637.
Strauss, 784.
Bear, 1279.
Donovan, 1516.
Henson, 1580.
Clark (*D'Argy*), 1590.
Spong, 1618.
Rhodes & Miller, 1750.
Schlesinger, 1813.
Jones, 1828.
Scott, 1925.
Nisbet, 2111.
Macintosh, 2195.
Browne (*Berthoud*), 2331.
Andrew, 2542.
Walker, 2632.
Destouy, 2768.
Macintosh, 2844.
Conradi, 3124.
Hathaway, 3140.
Cooke, 3266.
Loomes, 3300.
Doe, 3818.
Roman, 4177.

Toilet glasses. *See* "Looking-glasses."

Tombstones:
Rowbotham & Richardson, 684.
Robbins, 2116.

Tonologues. *See* "Teaching."

Tools; tool holders:
Buckley, 44.
Hodson, 93.
Riley & Henley, 254.
Haseltine (*Alexander*), 326.
Mc Intyre, 424.
Haseltine (*Cookerly*), 459.
Schlesinger (*Grout*), 465.
Forrest, 610.
Reidy, 848.
Newton (*Lowman*), 1153.
Clarke, 1175.
Liernur, Kops & Martignoni, 1648.
Lewis, 1780.
Whipp & Mellor, 2275.
Newton, 2720.
Thomsön, 2757.
Barker, 2885.
Phipps, 2970.
Browne, 3118.
Byron (*Arnold*), 3247.
Stevenson, Ree & Dunlop, 3248.
Howell (*Richards*), 3274.
Clark, 3442.
Mills (*Burgess*), 3589.
Lewis, 3721.
Sylvester, 3841.
Alley & Handyside, 3904.
Lancaster, 3922.
Alley & Handyside, 4085.
Haseltine (*Lindsay*), 4113.
Sylvester, 4155.

Tooth brushes. *See* "Brushes."

Tooth paste or powder:
Wilkinson, 4134.

Torches and links:
Clark (*Grawitz*), 703.

Torpedoes; torpedo launches:
Haseltine (*Smith*), 351.
Morgan-Brown (*Toselli*), 1449.
Bousfield (*Col. Von Schelihe*), 1532.
McEvoy, 1586.
Mathieson, 2588.
Palmer, jun. (*Palmer*), 2873.
Brain, 2984.
Wirth (*Beins*), 3194.
Fleury, 3309.

Towels:
Kippax, 1722.

Towing boats. *See* "Propelling ships."

Toys:
Jewett (*Rose*), 55.
Péan, 1229.
Hodgson, 2122.
Van Tenac, 2347.
La Grove, 2531.
Schlesinger (*Cramp*), 2679.
Péan, 2832.
Perry (*Alexander*), 2996.
Fleury, 3309.

Track clearers and cleaners for railways and tramways:
Yull, 485.
Bray, 724.
Black, 1264.
Jones, 2967.

Traction-engines:
Salmon, 147.
Thomson, 775.
Grange, 1032.
Todd, 1389.
Savage, 1457.
Mills, 1607.
Lake (*Sprague*), 1770.
Loe, 1829.
Samuelson, 2186.
Haseltine (*Eayrs & Stuart*), 2234.
Lake (*Parvin & Overman*), 2[illegible].
Sterne & Perkins, 3327.
Tasker, 3809.

Trade marks:
Jaques, 815.

Training vines, &c. *See* "Horticulture."

Tramway carriages, breaks and buffers:
Harrison & Conder, 32.
Salmon, 147.
Glen, 176.
Macneill, 206.
Betteley & Sharer, 238.
Wilson, 241.
Carrington, 427.
Fletcher, 457.
Gillespie, 559.
Tommasi, 696.
Lightbody, 698.
Lake (*Wilson*), 727.
Lyttle, 791.
Sadler, 883.
Grange, 1032.
Spencer & Smith, 1045.
Black, 1264.
Todd, 1389.
Spencer & Smith, 1435.
Wilson, 1695.
Krieger, 1768.
Wirth (*Sigl*), 1973.
Gilbert, 2029.
Cramp, 2341.
Gillespie, 2415.
Salmon, 2419.

**Tramway carriages, &c.—*cont.***
Hurd & Simpson, 2594.
Cohrs, 2630.
West, 2654.
Jones, 2957.
Clark (*Speer*), 2993.
Leveaux, 3123.
Sands, 3145.
Anderson, 3163.
Boyman, 3515.
Spill, 3550.
Johnson (*Agudio & Cail & Co.*), 3724.
Maples, 3753.
Hunt, 3790.
Wirth (*Sigl*), 4026.

**Tramway locomotives (turning):**
Todd, 1389.

**Tramway tracks (cleaning).** *See* "Track clearers."

**Tramways; suspended tramways; points and switches:**
Leigh (*Bunster*), 15.
Macneill, 206.
Codd, 221.
Puckle & Fennelly, 245.
Watson, 275.
Lyttle, 791.
Dowson & Dowson, 1116.
Haggett, 1461.
Maher & Black, 1668.
Schmidt, 1916.
Wirth (*Sigl*), 1978.
Arnold & Cleathero, 2676.
Brookes (*De Soignie*), 2730.
Hill & Hill, 2872.
Clark (*Speer*), 2993.
Fennelly (*Pilkington*), 3115.
Hughes (*Blythe*), 3457.
Wilkinson & Crowther, 3593.
Walker & Ragon, 3713.
Goodwin, 3728.
Hunt, 3790.
Alley & Handyside, 3904.
Wirth (*Sigl*), 4026.
Alley & Handyside, 4065.
Pignel, 4176.
Dering, 4223.

**Tramways (gauging and verifying relative positions of rails of):**
Morgan-Brown (*Camozzi & Schlöser*), 1246.

**Tramways (wire):**
Carrington, 427.
Simon (*Meinicke*), 1231.

**Transmitting motion.** *See* "Propelling or driving."

**Transparencies (making and fixing):**
Holyoake, 3075.
Holyoake, 3250.
James, 3359.
Gedge (*Laujorrois*), 4195.

**Traps (steam).** *See* "Steam traps."

**Traps for catching animals:**
Johnson (*Dietz*), 319.

**Traps for drains, &c.:**
Erskine & Denby, 192.
Pilling & Harlow, 480.
Gascoyne, 498.
Dean, 849.
Carter & Carter, 2247.

**Traps for letting off birds:**
Beer, 1343.

**Treadles.** *See* "Propelling or driving."

**Trellis for training vines, &c. and suspending shop goods:**
West, 4010.

**Trenches; entrenchments:**
Hughes (*Chillingworth*), 1779.
Robertson, 2684.
Hughes (*Chillingworth*), 3696.

**Trimmings; twisting fringe on fabrics:**
McBride, 579.
Hughes, 1096.
Henson, 1580.
Vaughan (*Chapin*), 1749.
Wanner, 2431.
Russell & Dominy, jun., 2492.
Donnet, 2563.
Condit, 2829.
Davies (*De Saumery*), 2847.
Lilly, 2952.
Davies, 3146.
James, 3359.
Unsworth, 3362.
Clark (*De Saumery*), 3835.
Brown, 3858.

**Troughs or bins:**
Bonneville (*Schenck & Hayek*), 310.
Williams, 1165.
Fottrell, 3086.
Holding, 3271.
Welch, 4028.
Wilcox, 4053.

**Trousers.** *See* "Wearing-apparel."

**Trunks.** *See* "Portmanteaus."

**Trusses for hernia:**
Schoevers, 84.
Pulvermacher, 1067.

**Trussing casks.** *See* "Casks."

**Tube cleaners; cleaning tubes:**
Wilson, 2509.
Sutcliffe, 2897.
Davies & Walker, 2914.
Sanderson & Proctor, 3082.
Sutcliffe, 3132.
Black, 3325.
Twibill, 3791.
Logan, 4273.

**Tube expanders and stoppers:**
Martin, 3077.
Boaz, 3171.
Black, 3325.
Rooke, 3549.

**Tubes.** *See* "Pipes."

**Tuck creasers.** *See* "Sewing."

**Tumblers.** *See* "Drinking vessels."

**Tunnels; tunnelling:**
Gay, 95.
Paddison, 193.
Rigby, 879.
Cranston, 1455.
Haggett, 1461.
Darlington, 1734.
Bousfield (*Haskin*), 2231.
Hurd & Simpson, 2594.
Roebuck & Lamb, 2863.
Ball (*François & Dubois*), 3611.
Lake (*McKean*), 3901.

**Tunning or cleansing ales.** *See* "Brewing."

**Turbines.** *See* "Waterwheels."

**Turf.** *See* "Peat."

**Turning and turning tools:**
Page, 107.
Barnett, 179.
Backus, Sawyer & Loryea, 217.
Newton (*Kirkham*), 444.
Forrest, 610.
Williams (*Ayres*), 1024.
Donald & Atkey, 1653.
Tannett, Craven & Fox, 1847.
Tongue (*Merrill*), 2558.

**Turning, &c.—*cont.***
Tongue (*Merrill*), 2560.
Lely, 3072.
Wilson, 3531.
Bromley, 3819.
Hughes (*Wood*), 3834.
Smith & Coventry, 3878.
Johnson (*Cottrell*), 4102.
Newton (*Westcott*), 4205.

**Turnip cutters:**
Clark, 1339.

**Turnips (gathering, &c.).** *See* "Potatoes."

**Turnips (paring and slicing).** *See* "Preserving food."

**Turnspits:**
Jacquemin, jun., 1663.

**Turnstiles:**
Wier, 182.
Smythe, 1866.
Bezer, 3160.
Brownjohn, 3423.
Starr, 3583.
Spratt, 3793.

**Turntables for railways.** *See* "Railway turntables."

**Turpentine; substitutes for turpentine:**
Thompson, 42.
Haseltine (*Lloyd*), 2311.
Haseltine (*Lloyd*), 2761.

**Turrets.** *See* "Ships of war."

**Tuyeres:**
Bayley, 292.
Körting, 626.
Lake (*Proudfoot*), 634.
Strickland, 984.
McKay & Macgeorge, 1365.
Smith, 1478.
Fisher, 2435.
Vaughan (*Lurmann & Aldendorff*), 2481.
Charpentier, 2941.
Gardner (*Gigodot*), 3053.
Sherman, 3323.
Wirth (*André*), 3843.

**Twine.** *See* "Ropes."

**Type.** *See* "Printing."

**Tyres.** *See* "Wheels for carriages."

## U.

**Ulmine (ovens for converting into coke).** *See* "Ovens and kilns."

**Umbrellas, parasols and sunshades:**
Harrison & Pearson, 121.
Power, 152.
Knight, 234.
De Ware, 304.
Weber & Roy, 400.
Lund, 840.
Favol, 852.
Holland, 1225.
Gedge (*Garrigues & Fayet*), 1300.
Morris, 1344.
Delmas (*Piquemal*), 1459.
Mc Skimming, 1564.
Spong, 1618.
Johnson (*Herzberg & Herzberg*) 2058.
Mignot, 2537.
Johnson (*Bertrand*), 2638.
Collieu, 2740.
Clark (*Duchamp, jun.*), 2835.

Umbrellas, &c.—*cont.*
Mignot, 3096.
Bradwell, 3097.
Elkan, 3410.
Holland, 3466.
Weber & Roy, 3542.
Holland (*Boin*), 3547.
Hart, 3564.
Kendall, 3568.
Smith, 3710.
Hill & Hill, 3778.
Croger, 3784.
Harrington, 3867.
Welch, 3968.

Upholstery (mattresses, beds, curtain fixtures, &c.):
Lanier (*Gense*), 130.
Larue, 172.
Alley, 911.
Hughes (*Buckley & Sawyer*), 1017.
Lake (*Mountain*), 1223.
Mannini, 1530.
Henson, 1580.
Morton, 1699.
Thomson (*Thomson*), 1931.
Moir & Miller, 2094.
Thompson, 2138.
Glendenning, 2159.
Arnold, 2516.
Clark (*Lichtenfelder*), 2620.
Hughes (*Peck*), 2670.
Mathews, 2753.
Alder, 3008.
Turner, 3147.
Lake (*Mountain*), 3200.
Riviere, 3625.
Fletcher, 3789.
Marlin, 3825.
Brown, 3858.
Clarke & Donisthorpe, 3869.
Bedington & Greaves, 3872.
Bessell & Wheeler, 3944.
Storey, 3981.
Phillips, 4009.
Welch, 4135.

Urinals; cleaning urinals:
Stidder, 236.
Chantrell, 499.
Scott, 570.
Tylor, 907.
Jobson, 1066.
Powell, 1325.
Davies, 1579.
Hammett, 1805.
Moule & Girdlestone, 1867.
Cramp, 1955.
Heap, 1939.
Main, 2544.
Tosser, 3006.
Ross, 3807.
Messenger, 4001.

Urine (treating). *See* "Manure."

Utilising waste heat. *See* "Heating."

## V.

Vaccination. *See* "Medical treatment of man."

Vacuum pans:
Watson, 824.
Jones, 894.
Rust & Nicholls, 1873.

Valises:
Page, jun. (*Brickson*), 2161.

Valves (air):
Cowles, 99.
Jones, 118.
Wilson, 241.
Johnson (*Digney, Digney, Lartigue & Forest*), 247.
Lake (*Smith*), 279.
Ramsden, 519.

Valves (air)—*cont.*
Sholl, 525.
Smith (*Giffard, Sublet & Armengaud, jeune*), 627.
Wright, 833.
Allfrey, 830.
Cooper, 991.
Darlington, 1168.
Johnson (*Ulery*), 1234.
Melling, 1260.
Weigelin, 1338.
Critchlow, 1351.
Atkin, 1361.
Denley, 1381.
Stevenson, 1563.
Williamson & Parsell, 1596.
Plessner, 1604.
Donald & Atkey, 1693.
Bailey, 1706.
Abel (*Westinghouse, jun.*), 1735.
Healey, 1788.
Imray (*Fayol*), 1852.
Hughes (*Bushnell & Merriman*), 1854.
Beaumont, 1919.
Hatschek, 2042.
Cole & Acton, 2276.
Sturgeon, 2279.
Blake (*Cutting*), 2343.
Haseltine (*Hall & Van Blarcom*), 2390.
Owen, 2506.
Holman, 2699.
Anderson & Harrison, 3812.
Johnson (*Winans*), 3820.
Abel (*Westinghouse, jun.*), 3849.
Lake (*Fogarty*), 3848.
Lake (*McKean*), 3901.
Edwards, 3905.
Lloyd, 3925.
Plessner, 3934.
Russell, 3941.
Fuller (*Ashley*), 3973.
Fuller (*Ashley*), 3974.
D'Humy, 4000.
Weatherby, 4161.
Beckett, 4285.

Valves (bottle):
D'Humy, 4000.

Valves (drain):
Main, 2544.
Liernur, 3168.

Valves (feeding bottle):
Smith, 334.

Valves (furnace, stove and retort):
Stell, 111.
Lake (*Knowles & Saunders*), 719.
Lake, 787.
Henderson, 1337.
Healey, 1788.
Nimmo, 2162.
Musgrave & Shillington, 2749.
Smith, 2787.
Stanley, 3154.
Thompson, 3849.
Edwards, 3905.
Lloyd, 3925.
Whittle, 3983.

Valves (gas):
Peebles, 7.
Leatham, 30.
Dean & Lancaster, 442.
Thomas (*Postle*), 709.
Wirth (*Korsean & Flürscheim*), 1611.
Healey, 1788.
Telling & Johnson, 1807.
Box, 1887.
Spencer, 1894.
Kidd, 1917.
Livesey, 2016.
Kidd (*Clough*), 2017.
Ditchfield, Watson & Childs, 2093.
Graham, 2246.
Brown, 2346.
Campbell & Parker, 2352.
Salmon, 2419.
Clark (*Seal & Brooks*), 2759.
Clark (*Crété*), 3240.
Gardner (*Franz*), 3264.

Valves (gas)—*cont.*
Hughes (*Henrard & Reymond*), 3340.
Belt, 3372.
Soul (*Korsean & Flürscheim*), 3387.
Nuttall, 3628.
Sutcliffe & Sutcliffe, 3679.
Holman, 3699.
Anderson & Harrison, 3812.
Lake (*Fogarty*), 3848.
Williams, 3929.
Turner, 4068.
Weatherby, 4161.
Walker, 4163.
Firth & Senior, 4182.
Autier (*Falconnier*), 4202.
Beckett, 4285.

Valves (india-rubber) making:
Quin, 599.

Valves (inhaling apparatus). *See* "Medical treatment of man."

Valves (lubricator). *See* "Oiling."

Valves (meter):
De Castro, 12.
Glover, 729.
Robinson, 3850.

Valves (musical instrument). *See* "Musical instruments."

Valves (oil-engine):
Tommasi, 696.

Valves or plugs for boats. *See* "Ship-building."

Valves (pump and fire-engine):
Newton (*Burdon*), 237.
Dennis, 301.
Lake (*West & Goodwin*), 353.
Haseltine (*Harwood & Newcomb*), 967.
West, 1158.
Clark (*Nichols*), 1205.
Clark (*Taylor*), 1241.
Wise (*Greindl*), 1258.
Benson (*Cope & Marsell*), 1267.
Colebrook, 1164.
Newton (*Babbitt*), 2271.
Chapman, 2281.
Brunton, 2573.
Douds & Hartsuff, 2849.
Worth, 3478.
Holman, 3699.
D'Humy, 4000.
Clarke & Walker, 4149.
Weatherby, 4161.

Valves (relief) for vessels containing liquids under pressure:
Payton, 621.

Valves (steam):
Allibon & Manbré, 2.
Leatham, 30.
Welch, 51.
Jones, 118.
Salmon, 147.
Johnson (*Digney, Digney, Lartigue & Forest*), 247.
Newton (*Burdon*), 237.
Sudlow, 272.
Rydill, 339.
Hoaking, 343.
Brown, 447.
Robertson, 448.
Lake (*Blake*), 452.
Lake (*Blake*), 454.
Johnson (*Kitson & Carr*), 521.
Edwards, 541.
Adams, 553.
Wood, 578.
Clark (*Gardner*), 606.
Payton, 621.
Farey, 644.
Smith & Brierley, 639.
Lake, 787.

**Valves (steam)—*cont.***

Allcock, 816.
Allfrey, 830.
Holt, 876.
Fish, 884.
Alley, 911.
Wallis & Steevens, 919.
Head, 923.
Mc Elroy, 1100.
Darlington, 1168.
Johnson (*Ulery*), 1234.
Harper, 1251.
Melling, 1260.
Pashley, 1263.
Brown & Biddell, 1301.
Critchlow, 1351.
Clayton & Shuttleworth, 1358.
Petherick & Rock, 1364.
Black, 1367.
Black, 1368.
Johnson & Shaw, 1372.
Benson (*Cope & Maxwell*), 1387.
Dixon, 1400.
Tinne, 1419.
Asquith, 1434.
Rochford, 1433.
De Negri, 1437.
Hülsenberg, 1441.
Thomas & Nightscales, 1454.
Ashworth, 1569.
Hugon, 1593.
Williamson & Parsell, 1595.
Wotherspoon, 1600.
Ochwadt, 1601.
Galloway & Beckwith, 1620.
Cutter (*Willis*), 1646.
Hargreaves, 1675.
Donald & Atkey, 1693.
Bailey, 1706.
Wyse, 1733.
Darlington, 1734.
Picking & Hopkins, 1745.
Luke, 1771.
Wood & Clarke (*Harrison*), 1772.
Bousfield (*Bickemeyer*), 1794.
Spear, 1808.
Murdoch (*Bede & Co. & Farcot & Sons*), 1862.
Curtis (*Mills*), 1924.
Simpson, 1949.
Lamb, 1966.
Cockburn, 1980.
Brydon & Davidson, 1991.
Newton (*Lassoe & Meyer*), 1995.
Melling, 1996.
Beams, 2028.
Colebrook, 2033.
Bennett, 2046.
Bridgett, 2073.
Robson, 2098.
Higginson, 2104.
Wilson, 2120.
Davison, 2140.
Colebrook, 2164.
Griffith, 2170.
Payne, 2224.
Rowan, 2233.
Rome, 2250.
Haseltine (*Tessenyman & Howard*), 2255.
Clark (*Taylor*), 2269.
Inglis & Spencer, 2325.
Spencer, 2326.
Greey, 2338.
Brown, 2346.
Haseltine (*Bayrs & Stuart*), 2354.
Moore, 2373.
Wirth (*Scheller & Berchtold*), 2380.
Muir & Caldwell, 2381.
Gedge (*Préville*), 2396.
Alley, 2409.
Johnson (*Sellers & Sellers*), 2461.
Hoyois, 2490.
Wirth (*Kernaul*), 2494.
Tongue (*Merrill*), 2558.
Brunton, 2573.
Black, 2580.
Casper (*Farinaux*), 2602.
Sibert, 2612.
Cameron & Hastie, 2613.
Watson & Pegler, 2637.
Carey, 2680.
Renshaw, 2692.
Hill, 2710.
Lowe, 2717.
Johnson (*Lobdell*), 2750.

**Valves (steam)—*cont.***

Macintosh, 2844.
Hallam, 2865.
Henry (*Depres*), 2876.
Fardon, 2927.
Haseltine (*Hoyt*), 2943.
Bonneville (*Schenck & Maurer*), 2966.
Clark (*Corrigan*), 2994.
Johnson (*Stevens, Steele & Condict*), 3052.
Johnson (*Kitson & Carr*), 3059.
Moy, 3088.
Rogers, 3158.
Allcock, 3209.
McCarter, 3214.
Harrop, 3319.
Hughes (*Henrard & Raymond*), 3340.
Trossin, 3401.
Pope, 3405.
Adams, 3435.
Walker, Messrs., 3501.
Boyman, 3515.
Clark, 3521.
Bower & Bower, 3528.
Melling, 3622.
Sutcliffe & Sutcliffe, 3679.
Holman, 3699.
Revell, 3709.
Ashworth, 3719.
Webb, 3748.
Kenyon, 3795.
Anderson & Harrison, 3812.
Robinson, 3850.
Hutchison, 3894.
Lake (*McKean*), 3901.
Allibon & Manbré, 3908.
Stuart, Jagger, Smith & Pilling, 3963.
Davis, 3995.
Southwood & Mathews, 4002.
Taylor, 4021.
Morgan, 4061.
Moy, 4078.
Clarke & Walker, 4149.
Samson & Parker, 4175.
Firth & Senior, 4182.
Beckett, 4285.

**Valves used in bronzing paper, &c.** *See* "Gilding."

**Valves (water):**

Leatham, 30.
Jones, 118.
Davies, 210.
Backus, Sawyer & Loryea, 217.
Stidder, 236.
Brown, 447.
Stoney, 550.
Attwater, 561.
Hoey, 712.
Heaton & Giddings, 872.
Tylor, 907.
Lake (*Prall*), 1051.
Palmer, 1063.
Bessemer, 1076.
Vickers, 1110.
West, 1158.
Pashley, 1263.
Critchlow, 1351.
Harris, 1383.
Rendel, 1425.
Henderson, 1442.
Davies, 1579.
Williamson & Parsell, 1596.
Charles, 1614.
Cutter (*Willis*), 1646.
Cowan, 1665.
Ronald & Farmer, 1676.
Lake (*Carll & Cook*), 1688.
Whittaker, 1798.
Hammett, 1805.
Jones, 1872.
Robertson, 1937.
Little, 1992.
Shanks, 2021.
Johnson (*Sellers & Sellers*), 2060.
Sweet, 2192.
Imray (*Gordon*), 2209.
Haseltine (*Poage*), 2270.
Neubecker, 2500.
Wheeler, 2503.
Robinson, 2713.

**Valves (water)—*cont.***

Clark (*Seal & Brooks*), 2759.
Hunt (*Bate*), 2794.
Tozer, 3006.
Thomason, 3195.
Clark (*Crété*), 3240.
Ambler & Gawthorp, 3392.
Sweet, 3554.
Gurney, 3610.
Boyell, 3639.
Sutcliffe & Sutcliffe, 3679.
Ross, 3807.
Lake (*Fogarty*), 3848.
Robinson, 3850.
Underhay & Carter, 3916.
Norbury, 4015.
Clarke & Walker, 4149.
Firth & Senior, 4182.
Sheppard, 4267.
Beckett, 4285.

**Valves (water-closet):**

Nichols 215.
Stidder, 236.
Tylor, 907.
Blundell, Messrs., 1099.
Powell, 1325.
Ronald & Farmer, 1676.
Moule & Girdlestone, 1867.
Banner, 2691.

**Varnish; varnishing:**

Boothroyd, 250.
Rowbotham & Richardson, 684.
Hughes (*Grimm & Corvin*), 700.
Sim & Morgan, 1215.
Rollason, 1610.
Williams, 1869.
Skoines, 2262.
Haseltine (*Lloyd*), 2311.
Haseltine (*Lloyd*), 2761.
Gedge (*Trottier*), 3045.
Mackay, 3129.
Gedge (*Lawjorrois*), 4195.

**Vases:**

Redgrave & Wright, 223.
Cunliffe, 2802.
Hyatt, 3380.

**Vats.** *See* "Cisterns."

**Vaults.** *See* "Buildings."

**Vegetable life (liquids for destroying).** *See* "Horticulture."

**Vegetable oils.** *See* "Oils from seeds."

**Vegetables (preserving).** *See* "Preserving food."

**Velocipedes:**

Clark (*Avery*), 189.
Grout, 463.
Hobson & Williams, 2980.
Wass, 3207.
Wilkins, 3569.
Monteith, 4152.

**Velocity of flowing water (indicating.)** *See* "Indicating velocity, &c."

**Velvets.** *See* "Weaving carpets."

**Velvets (winding and preserving in boxes):**

Russell & Dominy, jun., 2492.

**Veneers.** *See* "Wood."

**Venetian blinds.** *See* "Window-blinds."

**Vent pegs for casks.** *See* "Casks."

**Ventilating beds, hammocks, mattresses, sofa seats, &c.:**

Alder, 3006.

**Ventilating boots, shoes, goloshes, &c.:**
Smith, 70.

**Ventilating carriages:**
Turton & Rogers, 129.
Salmon, 147.
Palmer (*Hitchcock*), 772.
Acklom, 890.
Standfield, 992.
Tobin, 1081.
Landau, 1131.
Sterne, 1825.
Wintour, 2032.
Salmon, 2419.
Warren, 2434.
Childs, 2896.
Cleminson, 3215.
Forder, 3563.

**Ventilating cesspools, drains and sewers:**
Nichols, 215.
Kolb & Allsop, 316.
Pettifer, 395.
Myers, 1077.
Head, 3827.

**Ventilating drying machines:**
Rydill, 83.

**Ventilating elastic fabrics:**
Bowra & Wood, 228.

**Ventilating furnaces.** *See* "Air-supplying to furnaces."

**Ventilating hats.** *See* "Hats."

**Ventilating houses, buildings and sheds:**
Quelch, 141.
Hunt, 142.
Lake (*Martin & Beath*), 290.
Pettifer, 395.
Knaggs, 488.
Smith (*Giffard, Sublet & Armengaud, jeune*), 627.
Campbell, 656.
Humber & Haworth, 662.
Watts, 692.
Gratrix, 833.
Jobson, Messrs., 836.
Lawton, 859.
Cooper, 991.
Wolstencroft, 1020.
Tobin, 1081.
Brampton, 1104.
Johnson (*David & Fichet*), 1222.
Pratt, 1305.
Barlow (*Galland*), 1346.
Booth, 1373.
Barlow (*Galland*), 1443.
Torr & Johnstone, 1452.
Haggett, 1461.
Mickle, 1656.
Wintour, 2032.
Mitchell, 2035.
Kingan (*Kingan*), 2063.
Thomas, 2480.
Hyatt, 2788.
Roebuck & Lamb, 2863.
Hatton & Hatton, 2884.
Richardson, 3011.
Crane, 3094.
Wirth (*Windhausen*), 3142.
Johnson (*David*), 3190.
Ritchie, 3227.
Jones, 3297.
Ellis, 3311.
Jaques, 3370.
Hyatt, 3381.
Weems, 3457.
Clough, 3460.
Wadsworth, 3491.
Rydill, 3567.
Hyatt, 3658.
Warren, 3765.
Lendall, 3770.
Edwards, 3905.
Crossland, 4122.
Lake (*Ingram*), 4144.
Browne, 4279.

**Ventilating mill-stones.** *See* "Air-supplying."

**Ventilating mines and tunnels:**
Pettifer, 395.
Robertson, 448.
Brakell, 726.
Landau, 1131.
Haggett, 1461.
Williamson & Parsell, 1596.
Martin, 1953.
Hurd & Simpson, 2594.
Roebuck & Lamb, 2863.
Richardson, 3011.
Gardner (*Gigodot*), 3053.
Clough, 3460.

**Ventilating ships and stoke holes:**
Rydill, 329.
Pettifer, 395.
Smith (*Giffard, Sublet & Armengaud, jeune*), 627.
Wolstencroft, 1020.
Landau, 1131.
Young, 1212.
Pratt, 1305.
Atkin, 1361.
Haggett, 1461.
Williamson & Parsell, 1596.
Gray, 1617.
Stanley, 1948.
Wintour, 2032.
Roebuck & Lamb, 2863.
Richardson, 3011.
Clough, 3460.
Taylor, 4142.

**Ventilators (rotary):**
Vacherot, 1824.

**Vents for heavy guns.** *See* "Fire-arms (discharging)."

**Verandahs:**
Lee & Rogers, 190.

**Vices:**
Heap, 1765.
Harrison, 2848.
Barker, 2885.
Lancaster, 3922.

**Vinegar; spicing vinegar:**
Hutchings, 588.
Johnson (*David*), 3190.

**Vines (planting).** *See* "Horticulture."

**Violacein.** *See* "Dyes."

**Voltaic batteries.** *See* "Electricity."

**Voting or ballot apparatus; polling stations:**
Shelmerdine, jun., 2007.
Nettlefold, 2065.
Spratt, 3793.

**Vulcanite.** *See* "India-rubber."


## W.


**Wads.** *See* "Cartridges."

**Waiters:**
Newell, 514.

**Walking sticks:**
Weber & Roy, 400.
Delmas (*Piquemal*), 1459.
Spong, 1618.

**Wallets.** *See* "Knapsacks."

**Walls:**
Whitburn, 48.
Hunt, 142.
Napier, 246.
Gardner, 633.
Martin, 1070.
Taylor, 1458.
Haggett, 1461.
Cowdery, 1680.
Whichcord & Anderson, 2048.
Robbins, 2116.
Johnston, 2229.
Hide, 2308.
Hydes & Bennett, 2336.
Stone, 2678.
Tall, 2733.
Clark (*Pacy*), 2746.
Stone, 2915.
Wood, 3255.
Hyatt, 3256.
Bennett, 3345.
Hyatt, 3381.
Hyatt, 3658.
Hyatt, 3684.
Hornblower, 3714.
Lewis, 3721.
Hyatt, 3788.
Thomson, 3957.
Oppenheimer, 3971.

**Warping and beaming machines:**
Parkinson, 1075.
Whitehead, 1578.
Swainson & Haydock, 1743.
Singleton, 2244.
Ryo, Bros., & Emsley, 3065.
Bullough, 3648.
Coates, 3686.
Walmsley, 3779.
Singleton, 4244.

**Washers.** *See* "Nuts."

**Washing and wringing fabrics, fibres, yarns, &c.:**
Carmichael, 72.
Bentley & Garth, 145.
Seitz, 197.
Fairburn, 260.
Bull, 280.
Stead, 291.
Lake (*Corliss*), 300.
Dunn & Prangley, 428.
Lawrence (*Lawrence*), 516.
Henderson (*Demailly*), 591.
Horrocks, 690.
Davey, 722.
Reeves, 770.
Kinder (*Kinder*), 809.
Bonnar, 831.
Oldroyd, Oldroyd, jun., Woodcock & Coulter, 898.
Hughes (*Daudenart & Verbert*), 939.
Harlow, 1127.
Taylor & Wilson, 1182.
Wirth (*Dold*), 1332.
Cooper, 1483.
Billingham & McDowall, 1492.
Casper (*Desmarts & Furisset*), 1636.
Yates & Watson, 1664.
Lewis, 1750.
Pilkington, 1776.
Curtis (*Haynes*), 1916.
Sharp & Parkinson, 2117.
Petrie, jun., 2272.
Heywood & Duckworth, 2343.
Barlow, jun. (*Sarpent*), 2314.
Wirth (*Reissmer & Stamler*), 2332.
Johnson (*Davidson*), 2438.
Newton (*Sinclaire*), 2572.
Scharr, 2859.
Mason, jun., & Alcock, 2967.
Kingston, 3000.
Hughes (*Daudenart & Verbert*), 3014.
Bell (*Bell*), 3033.
Scott, 3087.
Wirth (*Dold*), 3285.
White (*Lloyd*), 3318.
Shorrock, 3332.
Spencer, Washington & Oddy, 3346.
Salisbury, 3364.
Bell, 3443.

**Washing fabrics, &c.—*cont.***
Bradford, 3381.
Reynolds, 3729.
Wardley, 3773.
Marlin, 3826.
Macgregor, 3853.
Gould, 3880.
Paget (*Bérenger*), 3953.
Samuel (*Stewart*), 3979.
Baerlein, 4014.
Johnson (*Freson, sen.*), 4027.
Todd, 4056.
Moore, 4107.
Oldroyd, Oldroyd, jun., Woodcock & Coulter, 4157.
Lunge (*Kraut*), 4212.
Birch, 4234.
Mc Farlane, 4251.

**Washing bottles, casks, dishes and glasses:**
Harvey, 1124.
Jobbins (*Fischer*), 2019.
Haycraft, 3605.

**Washing chemical residues:**
Owen, 3502.

**Washing coals and coke:**
Wilson, 1235.
Evrard, 1927.
Sheppard, 4267.

**Washing ores and minerals:**
Borlase, 269.
Evrard, 1927.
Cox, 2463.
Croll & Dalgairns, 2608.
Heatherington, 3424.
Peer, Lundquist & Rutherford, 3847.

**Washing paint, varnished and polished work:**
Forman, 3493.

**Washing roots:**
Reeves, 770.

**Washing sand, clay, ballast and gravel:**
Wilson, 1235.

**Washing sheep:**
White (*Lloyd*), 3310.

**Washstands.** *See* "Lavatories."

**Waste fibres and yarn.** *See* "Rags."

**Waste heat (utilising).** *See* "Heating."

**Watches.** *See* "Clocks."

**Water bottle life-buoys.** *See* "Life-buoys."

**Water brushes.** *See* "Brushes."

**Water colours.** *See* "Paints."

**Water conduits:**
Bonneville (*Schenck & Hayek*), 310.

**Water cranes or columns:**
Lake (*Prall*), 1051.
Haseltine (*Poage*), 2270.

**Water distributors:**
Boslase, 269.
Wheeler, 2503.

**Water gauges.** *See* "Gauges."

**Water meters.** *See* "Meters."

**Water tanks.** *See* "Cisterns."

**Waterclosets; dryclosets; commodes:**
Davies, 210.
Nichols, 215.
Stidder, 236.
Kolb & Allsop, 316.
Gascoyne, 496.
Chantrell, 499.
Scott, 570.
Hoey, 712.
Heaton & Giddings, 872.
Tylor, 907.
Robey & Chantrell, 967.
Wolstencroft, 1020.
Jobson, 1066.
Myers, 1077.
Blundell, Messrs., 1099.
Powell, 1325.
Scott, 1445.
Scott, 1509.
Davies, 1579.
Charles, 1614.
Ronald & Farmer, 1676.
Hammett, 1805.
Moule & Girdlestone, 1867.
Weare, 1957.
Heap, 1989.
Shanks, 2021.
Sweet, 2192.
Carter & Carter, 2247.
Fahlman, 2425.
Richardson, 2535.
Banner, 2691.
Robinson, 2713.
Carter, 2755.
Forrest & Hayes, 2907.
Tozer, 3006.
Liernur, 3168.
Buchan, 3293.
Sweet, 3554.
Gibson, 3785.
Ross, 3807.
Head, 3837.
Underhay & Carter, 3916.
Messenger, 4001.
Duty, 4128.

**Waterfalls (motive-power from).** *See* "Water-wheels."

**Watering and irrigating land:**
Stoney, 550.
Barlow & Walsh, 713.
Swan, 789.
Potel, 1752.
Imray (*Gordon*), 2209.
Knott, 2442.
Ramsay, 4092.
Browne, 4279.

**Watering cattle on railways:**
Welch, 4028.
Wilcox, 4053.

**Watering pots or cans:**
Pinnell, 1778.
Little, 1992.

**Watermark in paper (producing):**
Woodbury, 1954.
Mathews, 2428.

**Waterproofing; waterproof fabrics:**
Lyttle, 52.
Fox, 390.
Nangle, 495.
Baker (*Bogardus*), 573.
Rowbotham & Richardson, 684.
Oldroyd, Oldroyd, jun., Woodcock & Coulter, 898.
Newton, 1007.
Morris, 1344.
Bonneville (*Biennait*), 1348.
Hockley, 1382.
Lyttle, 1434.
Buncher, 1538.
Clark (*D'Argy*), 1590.
Rollason, 1610.
Lake (*Tucker*), 1860.
Shand, 1993.
Nisbet, 2111.
Robbins, 2116.
Thompson, 2138.
Rowan, 2507.
Macintosh, 2844.

**Waterproofing, &c.—*cont.***
Neville, 2918.
Simmons, 2926.
Turner (*Rightor*), 3043.
Wilkinson, 3083.
Turner, 3147.
Hyatt, 3256.
Clark (*Loiseau*), 3419.
Hyatt, 3684.
Clayton, 3806.
Newton (*Shepard*), 3864.
Harrington, 3867.
Clark (*D'Argy*), 4012.
Griswold (*Clark*), 4140.
Oldroyd, Oldroyd, jun., Woodcock & Coulter, 4157.

**Water-supplying to steam-boilers.** *See* "Steam-boilers."

**Water-supplying to towns:**
Shanks, 199.
Deacon, 937.
Imray (*Gordon*), 2209.
Carter, 2755.
Clark (*Seal & Brooks*), 2759.
Fottrell, 3086.

**Waterwheels; hydraulic motive-power:**
Johnson (*Picq*), 43.
Newton (*Dowry*), 89.
Turton, 169.
Backus, Sawyer & Loryea, 217.
Foster, 252.
Newton (*Burdon*), 257.
Sudlow, 272.
Fletcher, 457.
Edwards, 541.
Swan, 789.
Smith, 906.
Attwood, 1071.
Vickers, 1110.
Critchlow, 1351.
Atkin, 1361.
Bragg, 1411.
Burnett, 1493.
Nolden, 1552.
Williamson & Parsell, 1596.
Wood, 1643.
Lüdeke, 1806.
Newton (*Piatti & De Mutrécy*), 1834.
Jones, 1872.
Martin, 1953.
Brotherhood, 2003.
Goldsmith & Dilkes, 2041.
Rewse, 2095.
Wirth (*Ohl*), 2171.
Chapman, 2281.
Greey, 2338.
Vaughan (*Protheroe*), 2363.
Weatherdon, Colborne & Barrington, 2462.
Cooke & Hibbert, 2570.
Caldbeck, 2696.
Brachigny & Deschamps, fils, 2782.
Jones, 2797.
Clark (*Boys*), 2807.
Mitchell, 2861.
Gilbee (*De Mutrécy*), 2940.
Johnson (*Henry*), 2975.
Mott, 3028.
Baldwin, 3161.
Forbes & Hamilton, 3162.
Haseltine (*Wyss & Studer*), 3467.
Robinson, 3850.
Jones, 4023.

**Wax:**
Cox & Cox, 214.

**Wearing-apparel; outer garments for gentlemen; clerical costumes:**
Ullmann, 112.
Middlemass, 306.
Fox, 390.
Debeuham, 502.
Pulvermacher, 1067.
Kennett, 1174.
Birnbaum, 1475.
Bonneville (*Warth*), 1572.
Henson, 1580.

Wearing-apparel, &c.—*cont.*
Holland (*Johnston*), 1912.
Wulff, 2322.
Cogswell, 2495.
Armitage, 2665.
Osbourn, 2823.
Gold, 3109.
Warmington, 3621.
Henderson & Eley, 3851.
Clarke & Donisthorpe, 3869.
Zanzig, 3954.

Weaving bottle envelopes. *See* "Bottle envelopes."

Weaving carpets, velvets and other pile fabrics:
Todd & Braithwaite, 348.
Wilkinson, jun., & Brook, 415.
Warne (*Pinti*), 903.
Griffin (*Babbett, Miles & Hickey*), 908.
Smith, 1336.
Brookes (*Wattinne & Roettger*), 1357.
Henson, 1580.
Kippax, 1722.
Lightowler & Barraclough, 1841.
Lake (*Crossley*), 2294.
Brakell, 2546.
Cross, 2845.
Bayart, 2949.
Briggs, 3447.
Hunt (*Brassat*), 3669.
Marlin, 3825.
Haseltine (*Gates*), 4051.
Naylor & Jagger, 4173.
Gillet, 4259.

Weaving (healds). *See* "Healds."

Weaving lace. *See* "Lace making."

Weaving narrow fabrics:
Vaughan (*Chapin*), 1749.
Donnet, 2563.
Pearson, 2727.
Condit, 2829.
Unsworth, 3362.

Weaving or interlacing wire. *See* "Wire."

Weaving (pickers and temples):
Charlesworth, 114.
Wood, 151.
Porter, 201.
Morgan-Brown (*Thomas*), 612.
Leeming, 693.
Fielden, jun., & Fielden, 1128.
Hutchinson & Hollinsworth, 1464.
Wood, 1851.
Kennedy, 2030.
Parkinson, 2183.
Hughes (*Morton*), 2308.
Singleton, 2244.
Peel, 2321.
Donnet, 2563.
Hatch, 2947.
Peel & Emsley, 3295.
Smith, 3764.
Lockwood & Chappell, 4024.
Singleton, 4244.

Weaving plain, figured and tubular fabrics; jacquards and tappets; looms and power looms:
Bowker, 3.
Knowles & Barnes, 105.
Charlesworth, 114.
Wood, 151.
Bottomley & Naylor, 167.
Longworth & Jones, 296.
Morgan-Brown (*Thomas*), 612.
Mercer & Worthington, 647.
Humber & Haworth, 662.
Lund, 840.
Haworth, 869.
Rowe, 961.
Heaven, 1062.
Johnston & Cotton, 1202.
Newton (*Kane*), 1238.

Weaving—*cont.*
Mendel, 1272.
Knowles & Chalk, 1356.
Whitehead, 1578.
Brown, 1629.
Brown, Ayrton & Austin, 1632.
Wood, 1652.
Kippax, 1721.
Kippax, 1722.
Thompson, Thompson & Hodgson, 1848.
Smith, 1879.
Helm, 2196.
Tomlinson & Moss, 2307.
Singleton, 2244.
Richmond, Richmond & Dodgeon, 2252.
Greaves, Pearson & Brickhill, 2253.
Haseltine (*Ross*), 2284.
Pearson, 2288.
Peel, 2321.
Schmidt, 2376.
Helm, 2451.
Mignot, 2537.
Donnet, 2563.
Ball & Jowett, 2610.
Woodcock, 2652.
Mathews, 2753.
Catlow, 2773.
Hodgson, 2818.
Grange, 2950.
Richardson, 3010.
Mignot, 3096.
Holden & Woodacre, 3259.
Rutherford, 3358.
Moseley & Holbrook, 3367.
Turner, 3414.
Byron (*Merrill*), 3483.
Laird, jun., & Rutherford, 3508.
Haseltine (*Oldfield*), 3700.
Toussaint, 3753.
Smith, 3764.
Turner, 3786.
Lockwood & Chappell, 4024.
Turner, 4049.
Haseltine (*Gates*), 4051.
Glover, 4115.
Crabtree, Bottomley, Shackleton & Naylor, 4162.
Singleton, 4244.

Weaving (reeds and lays):
Fleming & Milner, 1035.
Jowett, 1880.
Singleton, 2244.
Schmidt, 2376.
Toussaint, 3753.
Singleton, 4244.

Weaving (shuttles):
Wood, 151.
Holding & Harris, 419.
Griffin (*Babbett, Miles & Hickey*), 908.
Holmes & Holmes, 941.
Owen, 1136.
Hodgson, Hodgson, jun., & Stephenson, 1690.
Bennett, 1707.
Langlands & Johnston, 2160.
Haseltine (*Ross*), 2284.
Peel, 2321.
Lake (*Stevens & Gear*), 2328.
Robinson & Lister, 3218.
Moseley & Holbrook, 3367.
Haseltine (*Gates*), 4051.
Glover, 4115.

Weaving washer-cloths:
Worth, 753.

Weeders; weeding and seed gathering machines; killing and checking weeds.
Hodson, 93.
Dunn, 2278.
Jurgenson (*Ingermann*), 2972.

Weft (passing through shuttles). *See* "Weaving."

Weighing-machines; weighbridges; indicating weight:
Mackie, 445.
Rolin, 606.
Spencer & Consterdine, 631.
Bartlett, 1464.
Chapman & Denholm, 1838.
Duckham, 1959.
Smith (*Smith*), 2074.
Stead, 2130.
Varley & Furness, 2234.
Baxter, 2421.
Beeer, 2466.
Brownhill, 2605.
Hodgson, Hodgson & Needham, 2724.
Stobart & Allan, 2903.
Penn-Gaskell (*Harris*), 3055.
Paddison, 3399.
Mc Millan, 3600.
Tatham, 3668.
Kaiser, 3992.
Trafford, 4137.

Weirs; dams:
Paddison, 193.
Lyon & Robinson, 1539.
Goldsmith & Dilkes, 2041.
Imray (*Gordon*), 2299.

Welding metals. *See* "Metals (forging)."

Wells:
Shanks, 199.
Sauvée (*Zeuhoff & Grossmer*), 187.
Clark (*Pavy*), 2746.
Rowan, 3665.

Wet gas meters. *See* "Meters."

Wheat. *See* "Grain and seeds."

Wheels for carriages; railway and tramway wheels; wheel guards:
Parlour, 144.
Salmon, 147.
Codd, 221.
Ireland (*Pink*), 263.
Markham, 345.
Cook, 408.
Grout, 463.
Gratton & Beal, 466.
Daelen, 484.
Reynolds & Reynolds, 499.
Armstrong, 582.
Greenwood, 585.
Tasker, 746.
Thomson, 775.
Lyttle, 791.
Strickland, 984.
Alley, 1141.
Haggett, 1461.
Stanley, 1485.
Whight (*Rogerson*), 1573.
Wilson, 1696.
Savage, 1730.
Lake (*Sprague*), 1770.
Hadfield, 1787.
Olds, 1796.
Lake (*Blackman*), 1831.
Johnson, 1898.
Hahn (*Bassom*), 1905.
Schmidt, 1916.
Murphy, 1918.
Firth, 2141.
Spencer (*Buckwell*), 2157.
Wheatley, 2285.
Salmon, 2419.
Markham, 2589.
Bonnewell, 2606.
Galland, 2617.
Hadfield, 2700.
Wise (*Pratt & Parsons*), 2781.
Mills (*Charlton*), 2810.
Clark (*Speer*), 2903.
Fennelly (*Pilkington*), 3116.
Simonds & Dyer (*Sax*), 3132.
Sands, 3145.
Cleminson, 3215.
Byron (*Arnold*), 3267.
Hyatt, 3356.

**Wheels for carriages, &c.—*cont.***
Tuddenham, 3267.
Whight (*Rogerson*), 3543.
Wilkins, 3569.
Mills (*Burgess*), 3589.
Hyatt, 3684.
Hunt, 3790.
Bromley, 3819.
Palmer, 4054.
Smith, 4226.

**Wheels for machinery:**
Leigh (*Bunster*), 15.
Cooper, 16.
Knowles & Barnes, 105.
Lake (*Corliss*), 300.
Fawcett, 471.
Darling & Sellers, 572.
Morgan-Brown (*Thomas*), 612.
Little & Eastwood, 839.
Griffin (*Babbett, Miles & Hickey*), 908.
Hall, 971.
Hacking & Hacking, 1015.
Hadfield, 1787.
Lake (*Whitney*), 1801.
Hansen, 1810.
Johnson, 1896.
Elce & Arundel, 1950.
Barrow, 2154.
Avery, 2298.
Harris, 2473.
Poole, 2478.
Lake (*Avery*), 2496.
Rintoul, 2664.
Lowry, 2864.
Griswold, 3287.
Wilson, 3531.
Darlington & Scott, 3636.
Peer, Lundquist & Rutherford, 3847.
Dickinson, 3896.
Newton (*Tous y Mirapeix*), 4098.

**Whips:**
Spong, 1618.
Holding & Nicholson, 3752.

**Whisky.** *See* "Distilling alcohol."

**White lead.** *See* "Metallic salts."

**Wicks for lamps and burners:**
Sokolnicki, 336.
Hyatt, 3256.

**Wig making.** *See* "Hair-dressing."

**Winches.** *See* "Hoists."

**Winding and reeling yarns and threads:**
Wibberley, 955.
Booth, 1040.
Laycock & Shuttleworth, 1078.
Bonneville (*Warth*), 1572.
Whalley, 1984.
Boyd & Boyd, 2226.
Singleton, 2244.
Combe, 2289.
Wanner (*Hall*), 2367.
Unsworth, 3170.
Raworth, 3411.
Robertson, Orchar, Muir & McIlwham, 3437.
Baerlein, 4014.
Trafford, 4137.
Ward & Robinson, 4168.
Singleton, 4244.

**Winding apparatus in telegraphs:**
Spence (*Girardon*), 1188.

**Winding in spinning machinery.** *See* "Spinning, twisting."

**Winding or hoisting.** *See* "Hoists."

**Winding up watches.** *See* "Clocks."

**Windlasses.** *See* "Hoists."

**Windmills:**
Hammond, 1654.
Hyatt (*Brown*), 3007.
Adams, 3164.

**Window blinds:**
Turner, 60.
Boothroyd, 250.
Lee, jun., 566.
Lake (*Beck*), 795.
Potter, 1085.
Hall, 1476.
Mudie, 1598.
Fuller, 1886.
Peirce & Peirce, 2063.
Spear, 2277.
Davies, 2345.
Richards, Mott, Mott & Howes, 2593.
Hatton & Hatton, 2884.
Partridge, jun., 3199.
Hyatt, 3256.
Weston, 3455.
Wood, 3479.
Mewis, 3703.
Haseltine (*Nichols*), 4276.

**Windows, sashes and skylights; window fasteners and cleaners; sash weights:**
Whiting & Bolton, 39.
Turton & Rogers, 129.
Woollright, 163.
Hugall, 177.
Hopkinson, 181.
Dennis, 301.
Toulson & Harmer, 335.
Goodwin, 630.
Harris, 942.
Meakin, 1179.
Tydeman, 1211.
Dawes, 1259.
Haggett, 1461.
Quick, 1488.
Stabb, sen., 1565.
Cramp, 1955.
Wintour, 2032.
Tuck, 2144.
Johnson (*Hyatt*), 2366.
Hodgson, 2518.
Ramonson, 2526.
Pearce & Pearce, 2556.
Hyatt, 2788.
Cunliffe, 2802.
Hatton & Hatton, 2884.
Parkes, 2890.
Holycake, 3075.
Elsley, 3241.
Hyatt, 3256.
Atkinson & White, 3260.
Hyatt, 3380.
Hyatt, 3381.
Hibbert, 3518.
Hyatt, 3658.
Hyatt, 3684.
Mewis, 3703.
Lendall, 3770.
Hyatt, 3788.
Beanland, 3860.
Cawthorn, 3868.
Burton, 3966.
Clark (*D'Argy*), 4012.
Burton, 4126.
Lake (*Ingram*), 4144.
Gedge (*Laujorrois*), 4195.
Hyatt, 4241.

**Wine (making and removing acidity from); wine bins:**
Sutton, 599.
Lees & Faulkner, 1612.
Farrow, 2066.
Ker, 2123.
Hyatt, 3783.

**Winnowing machines:**
Murdoch (*Haggenmacher*), 2547.
Gedge (*Alexandre-Balat*), 2929.

**Wire cloth:**
Harris, 1383.

**Wire tramways.** *See* "Tramways."

**Wire-working; wire ropes:**
Law & Law, 71.
Clark (*Broomhead*), 320.
Walton, 337.
Clark (*Dean*), 355.
McEvoy, 740.
Rylands, 817.
Keene (*Baudwin*), 834.
Hayward, 870.
Strange (*Cameron & Frier*), 904.
Hare & Ardron, 998.
Newton, 1007.
Whitley, Hoyle & Haigh, 1016.
Winslow, 1019.
Fleming & Milner, 1035.
Reed, 1052.
Laycock & Shuttleworth, 1078.
Hughes, 1096.
Morgan-Brown (*Toselli*), 1440.
Yates, Yates & Kellett, 1518.
Sprague, 1558.
Rowat, 1661.
Walton, 1683.
Cooke, 1903.
Wirth (*Sigl*), 1978.
Rowett, 2077.
Bonneville (*Radde*), 2091.
Robbins, 2116.
Whitehead, 2187.
Boby, 2300.
Lake (*Brownell*), 2302.
Hoffmark (*Schpakowsky*), 2359.
Moffatt, 2386.
Wormald & Dobson, 2441.
Harding & Harding, 2499.
Smith (*Laviarde*), 2501.
Snowball, 2553.
Rayson, 2708.
Clarke & Turner, 2726.
Farmer & Turner, 2826.
Lake (*Stevens & Gear*), 2828.
Moseley, 2969.
Wilkinson, 3063.
Fottrell, 3086.
Morewood & Rogers, 3125.
Morewood & Rogers, 3126.
Bromhead, 3234.
Hyatt, 3256.
Walton, 3338.
Hyatt, 3380.
Holland (*Boin*), 3547.
Wilkins, 3569.
Riviere, 3625.
Ingram, 3663.
Hyatt, 3684.
Hooper, 3780.
Gray, 3862.
Gray, 3863.
Chelot, 3897.
Lancaster, 3922.
Hooper & Dunlop, 3997.
Haseltine (*Averell*), 4031.
Rowett, 4079.
Browne (*Durand & Duborget*), 4080.
Haseltine (*Lindsay*), 4113.
Glover, 4115.
Madsen, 4167.
Rubery, 4193.
Count de Gendre, 4215.

**Wood and veneers (printing).** *See* "Printing wood."

**Wood (cement for joining):**
Harrison, 2488.

**Wood (cutting, tenoning, rebating, &c.)** *See* "Cutting wood."

**Wood (disintegrating, boiling and making pulp):**
Seitz, 197.
Noble, 607.
Lee, 695.
Curtis (*Gould*), 760.
Houghton, 811.
Bevan & Drew, 931.
Hunt (*Mejh & Voelter*), 1421.
Haggett, 1461.
Gray, 1486.
Armitage, 2334.

Wood—*cont.*
Bevan, 2718.
Aylmer, 3063.
Martin, 3751.
Johnson (*De Meritens & Kreeser*), 3937.

Wood (miscellaneous applications):
Whitburn, 48.
Weekes & Barnard, 209.
Talcott (*Ayres*), 414.
Sholl, 525.
Greenwood, Saville & Morton, 568.
Lockwood, 2051.
Hyatt, 3684.
Noad, 3917.

Wood (ornamenting). *See* "Ornamenting."

Wood (pavement blocks and planks; sleepers):
Macneill, 184.
Macneill, 206.
Lyttle, 791.
Savage, 1534.
Plunkett, 1789.
Henson, 1968.
Bonneville (*Maitre*), 2010.
Western, 2069.
Lake (*Hotchkiss*), 2698.
Knight, 3373.
Hughes (*Blythe*), 3437.
Galloway, 3599.
Lyttle, 3769.
Clark, 4283.

Wood (seasoning and preserving). *See* "Preserving wood."

Wool (cleaning or extracting grease from). *See* "Fibres (cleaning)."

Working anchors. *See* "Anchors."

Wrecked vessels (conveying lines to and from):
Léchandée, 4132.

Wrecks (raising). *See* "Raising ships."

Wrenches; spanners:
Buckley, 44.
Schlesinger (*Grout*), 465.
Reidy, 849.
Haddan (*Fairman*), 1157.
Smart & Fixter, 1820.
Comber, 2400.
Walker, 3418.
Comber, 3659.
Lancaster, 3922.
Haseltine (*Lindsay*), 4113.

Wringing. *See* "Washing fabrics."

Writing machines:
Densmore & Farnham, 668.

Writing slates and tablets:
Tongue (*Suzanne*), 140.
Lerina, 1444.
Bramley & Green, 1961.

## Y.

Yachts:
Weatherdon, Colborne & Barrington, 2462.

Yarns:
Singleton, 2244.
Donisthorpe, Donisthorpe, Clark, Snowden & Dearden, 2438.
Stubbs & Corrigan, 3123.
Ermen & Ermen, 3154.
Johnson, 3601.
Crawford & Crawford, 3694.
Lindemann, 3871.
Singleton, 4244.

Yeast:
Clark (*Pasteur*), 1106.

## Z.

Zinc (recovering). *See* "Metals (smelting)."

Zincographing. *See* "Printing."

15 & 16 VICTORIÆ, Cap. 83. Sec. XXXII.

# SUBJECT-MATTER INDEX

OF

# PATENTS APPLIED FOR AND PATENTS GRANTED,

## For the Year 1874.

---

Printed and Published by Order of the Commissioners of Patents

UNDER THE

ACT of 15 & 16 VICTORIÆ, Cap. 83. Sec. XXXII.

BY BENNET WOODCROFT, F.R.S.,

CLERK TO THE COMMISSIONERS OF PATENTS.

LONDON:

PRINTED BY GEORGE EDWARD EYRE AND WILLIAM SPOTTISWOODE,
PRINTERS TO THE QUEEN'S MOST EXCELLENT MAJESTY.

PUBLISHED AT THE OFFICE OF THE COMMISSIONERS
OF PATENTS FOR INVENTIONS,
SOUTHAMPTON BUILDINGS, HOLBORN.

1875.

# SUBJECT-MATTER INDEX

OF

# PATENTS APPLIED FOR AND PATENTS GRANTED,

## For the Year 1874.

[The names printed in *Italic* are those of the persons by whom the inventions have been communicated to the Applicants for Letters Patent. The consecutive numbers of the Applications, which are prefixed to the Abridgments contained in this volume, follow the names.]

## A.


**Acetate of copper.** *See* "Metallic salts."

**Acetate of soda.** *See* "Alkalies."

**Acetic acid.** *See* "Acids."

**Acidity in beer (removing).** *See* "Brewing."

**Acids:**

Coating or lining pipes for conveying, Fottrell, 77.
Condensing and obtaining muriatic, Newall & Bowman, 165.
Ozonising sulphuric, nitric, vinegar, &c., Monckton, 265.
Making sulphuric, Glover, 346.
Separating sulphuric and picric, Lowe, 425.
Obtaining hydrochloric, Hargreaves & Robinson, 448.
Vinegar from grains or malt, Garton, 508.
Obtaining hydrochloric and sulphuric, Bale, 521.
Producing salicylic and similar, Johnson (*Kolbe*), 595.
Obtaining carbonic and sulphuric, Mc Beath, 601.
Obtaining hydrochloric, Hughes (*Daudenart & Verbert*), 911.
Glass tubes for conveying, Chedgey, 1075.
Pumps for, Suffield, 1256.
Separating and preparing carbolic, Lowe & Gill, 1435.
Generating carbonic acid gas, Wallace & Tucker, 1487.
Generating carbonic acid gas, Joyce (*Selten*), 1523.
Recovering sulphuric, Jackson, 1583.
Producing carbonic, Johnson (*Juron & others*), 1672.
Obtaining hydrochloric, Königs & Henderson, 1742.
Treating carbonic acid gas, Wise (*Preusser*), 1763.
Recovering hydrochloric and phosphoric, Hunter, 1811.
Producing nitric, Prentice, 1841.
Recovering hydrochloric; making phosphoric, Tanner, 1915.
Pumps for muriatic and other, Hazlehurst, 1957.
Purifying carbonic acid gas, Lake (*Meylert*), 2006.
Vaporising acetic, for white lead, Lake (*Meylert*), 2006.
Condensing muriatic acid gas, Newall, 2077.
Glass pipes for conveying and condensing, Pilkington, 2111.
Purifying sulphurous acid gas, Weatherby, 2115.
Producing azotic and sulphuric, Hunt (*Reynoso*), 2181.
Obtaining carbonic and sulphuric, Henry (*Faucheux*), 2463.
Obtaining and applying carbonic acid gas, Mc Neile, 2508.
Recovering hydrochloric, Scott, 2568.
Making hydrochloric, Johnson (*Grüneberg & Vorster*), 2639.
Decomposing carbonic acid by hydrogen, Hansson, 2749.
Making carbonic acid gas, Johnson (*Wolcott & Wood*), 2795.
Giffard injector for making sulphuric, De Hemptinne, 2807.
Making, denitrifying, &c. sulphuric, De Hemptinne, 2807.
Making sulphurous and sulphuric, Payne, 2893.
Lining pipes, &c. for containing, Thomson & Watson, 2913.
Producing hydrochloric acid gas, Hunt, 3005.
Making elaidic and palmitic, Morgan-Brown (*Bastie*), 3021.
Making sulphuric, Wilkes & Aunier, 3087.
Recovering carbonic acid gas, Cropper, 3238.
Saving nitre in making sulphuric, Scott, 3417.
Producing sulphuric, nitric and muriatic, Monckton, 3509.
Producing carbonic acid gas, Wallace & Tucker, 3746.
Coke for producing carbonic acid, Hackney, 3795.
Sugar for vinegar making, Garton, 3950.
Generating carbonic acid gas, Delpech, 4287.
Making sulphuric, Newton (*Nobel*), 4342.
Recovering sulphuric, from refuse "pickle," Pughsley, 4373.
Denitrating apparatus for sulphuric, Speir & Mather, 4386.
Condensers for hydrochloric, Speir & Mather, 4386.

**Acidulated drops.** *See* "Confectionary."

**Acoustics (studying).** *See* "Teaching."

**Address plates.** *See* "Sign plates."

**Adhesive plasters.** *See* "Surgery."

**Adjusting ships' compasses.** *See* "Compasses."

**Advertisements; advertising:**

Self-revolving lamp for, Abrahams, 251.
Using fumigating cabinets for, Kinder & Kinder, 259.
Glass table tops for viewing, Bonnoville (*Leob*), 471.
Box or case for, Wood, 960.
By railway and other tickets, Montefiore, 1139.
Preparing and adapting writing paper for, Tarbutt, 1829.
By railway and other tickets, Montefiore, 2090.
Colour-printing show-cards & articles used for, James, 2167.
Blocks or frames for advertising on walls, &c., Cotter, 2545.
By samples and models placed in tablets, &c., Smethurst, 2715.
Raised or sunk metal show-tablets for, Trevisany, 2905.
Adapting trays, waiters, table tops, &c. for, Brownlie, 3308.
Displaying, by means of travelling surfaces, Clark, 3695.
Combined calendar and advertising medium, Bardo, 3753.
Matches for ("allumettes-publicité"), Lake (*Charrey*), 4013.

**Aërated liquids; aërating:**

Ozonising, Monckton, 265.
Artificial apollinaris water, Smith, 345.
Boiler & receiver for heating water for, Gedge (*Fabas*), 1193.
Beer and fermented beverages, Bruce & Sykes, 1318.
Vessels or receptacles for containing, Nicoll, 1626.
Cooling soda-water fountains, Clark (*Ridgway*), 1694.
Capsule gas-holder attached to bottles for, Marescot, 1969.
Forcing or charging apparatus for, Körting, 3471.
Soda-water machines, Monckton, 3509.
Combined condenser, filter & aërator, Lake (*Lighthall*), 3853.
Injectors for aërating water, Lake (*Lighthall*), 3853.
Ale, porter and like fermented beverages, Bruce, 4180.
Nutritive effervescing drink, Tallerman & Clarke, 4340.
Refrigerating apparatus, &c. for making, Ross, 4414.
Using Giffard injector, &c. for aërating, Ellis, 4437.
Forming "compound soda water" or potash, &c., Ellis, 4437.

**Aërated liquids (bottling).** *See* "Bottles."

**Aërial-machines; aërostation:**

General construction, De Vogt, 81.
Constructing and propelling, Monckton, 265.
Wings and pistons actuated by gases, Ridley, 777.
Hot-air captive balloon ("The Ménière"), Ménier, 1144.
Lights for balloons and parachutes, Silas, 1218.
Engine for propelling, Gedge (*Bret*), 1579.
Constructing, propelling and steering; aëroplanes, Moy, 2808.
Guiding, steering, propelling and landing, Baggs, 2821.
Making hydrogen gas for, and inflating balloons, Baggs, 2821.
Portable hydrogen gas apparatus, Lake (*Browne*), 3058.
Hot-air balloons, Simmons, 3132.
Propelling and steering, by mechanical means, Hime, 3177.
Constructing and propelling, Monckton, 3509.
Air-tight chambers for, and inflating balloons, Watt, 3831.
Constructing, &c. gas balloons, Alexander (*Brion*), 3996.

**Aërometers:**

For use in distilleries, Johnson (*Redier & Co.*), 1587.

**Ageing alcoholic liquids.** *See* "Alcohol."

**Ageing fabrics.** *See* "Finishing."

**Agitating and stirring.** *See* "Mixing."

**Air and gas engine governors.** *See* "Governors."

**Air and gas engines; pneumatic motive-power:**

Double-acting gas motors, Gottheil (*Gilles*), 25.
Pressure regulator or controller, Clark (*Casement*), 70.
Rotary fan, to be used as, Van de Weerd, 245.
Gas motor, Abel (*Daimler*), 414.
Rotary gas-engines, Ford, 486.
Petroleum or liquid hydro-carbon, Hock, 493.

**Air and gas engines; pneumatic motive-power—*cont.***

Combined air, steam and caloric, Marchant, 509.
Compressed air, Johnston, 531.
By contraction & expansion of heated air, Johnson (*Hirsch*), 594.
Caloric, Johnson (*Hirsch*), 594.
Gas motor, Abel (*Daimler*), 605.
Rotary, where counter thrust is required, Teulon, 706.
Arranging and actuating valves, Robinson, 717.
Compressed air, Browne, 816.
For tram or common road carriages, Scott-Moncrieff, 868.
Rotary and reciprocating, Teulon, 939.
Combined steam and air, Harper, 951.
Compressed air, Carobbi & Bellini, 961.
Three cylinder compressed air, Willans, 974.
Compressed air, Prall, 979.
Compressed air, Pattison, 1189.
Compressed air and gas, Johnston, 1333.
For tram or common road carriages, Scott-Moncrieff, 1458.
Compressed air and water-weight engine, Spartali, 1500.
Carbonic acid gas, Joyce (*Seltzer*), 1523.
Hot-air, Gottheil (*Berlin-Anhalt Machine Co.*), 1565.
Applying to tramway & other vehicles and boats, Spill, 1586.
Compressed air, Manson, 1603.
Cooling cylinder, exhaust valve & pipes, Butterworth, 1652.
Compressed, for percussive machinery, Clark (*Chenôt*), 1676.
Liquid meters usable as, Alexander (*Schmid*), 1799.
Compressed air, Nehrlich, 1873.
Combined gas and caloric, Newton (*De Bisschop*), 1910.
Working, by waste gases from boiler furnaces, Russell, 1962.
Circular grate valves, &c. for, Soul (*Hartog & Co.*), 2037.
Carburetting air for, Haseltine (*Brayton*), 2209.
Valve gear, Bremme, 2361.
Hot and cold air engine, Stevens (*Laubereau*), 2364.
General construction of rotary, Kaulbach, 2417.
Thermodynamic engine ("Fuel engine"), Jenkin, 2441.
Cylinders and piston heads, Abel (*Roberts*), 2516.
Constructing pistons & cylinder covers, Perch & Higgs, 2546.
Rotary steam-engine adaptable as an, Higginson, 2552.
Pistons for horizontal, Higham, 2657.
Carbonic acid gas, Johnson (*Wolcott & Wood*), 2795.
Forming air cylinder pistons, Whaley, 2856.
Arranging ports of, and reversing gear for, Knowelden, 2901.
Rotary compressed air, Sudlow, 2962.
Liquid and aëriform carbonic acid gas, Waller, 3017.
Superheating carbonic acid gas for, Waller, 3017.
Hydro-thermo atmospheric engine, Tommasi, 3031.
Compressing air for driving, Bonneville (*Devlan*), 3051.
Portable hydrogen gas apparatus for, Lake (*Browne*), 3058.
Combined air, steam and caloric engine, Marchant, 3189.
Rotary air, Smith (*Smith*), 3191.
Working pistons of gas motor engines, Crossley, 3205.
Combined steam and carbonic acid gas engine, Cropper, 3238.
Adapting gas-engines to tram-cars, &c., Lascelles, 3257.
Combined air, lever and weight, Davidson & Goldstein, 3261.
Employing two revolving pistons in rotatory, Pinhey, 3267.
Rotary marine and other air, Allix, 3315.
Reciprocating, for rock drills, hammers, &c., Edwards, 3342.
Frames or supports for reciprocating, Edwards, 3342.
Compressing air for working, Benson (*Cope & Maxwell*), 3361.
Combined steam and caloric engine, Clark (*Samuel*), 3536.
For working direct-acting pumps, Hamilton, 3549.
Cylinder and valve arrangement for, Wilks, 3621.
Arranging and working valves in, Parker & Weston, 3658.
Compressing air for working, Johnson (*Faivre*), 3802.
Utilising weight of traffic for, Johnson (*Faivre*), 3802.
Rotary, Mills (*Teal*), 4035.
Operating file-cutting tools, Haseltine (*Vogel*), 4054.
Double-acting atmospheric, Nolet, 4196.
Combined air and water, Cave, 4269.
Producing circular motion without cranks, Greey, 4357.
Gas-engines for tram-cars, Kirkwood & others, 4410.
Compressed air locomotive, Bonneville (*Havard*), 4417.
Equilibrium slide valves; oiling same, Willis & Blick, 4420.
Compound reciprocating, Clayton & others, 4455.
Oscillating valveless, Haseltine (*Wardwell*), 4466.

**Air blowers or fans.** *See* "Blowing engines."

**Air cushions.** *See* "Upholstery."

**Air filters.** *See* "Filters."

**Air pumps; compressing air:**

Exhausting air from siphons, Rew, 300.
For working air-engines, Johnston, 531.
Actuating valves of, Harrison & others, 537.
Pressure generators or apparatus, Johnson (*Hirsch*), 594.
Direct-acting engines for, Fielding, 788.
Utilising vertical motion of ships for, Browne, 816.
Rotary, for pumping or forcing, Cook, 840.
Three cylinders acting with a crank drum for, Teulon, 939.
Of compound engines, Alliott, 942.
Fulminating air compressor, Carobbi & Bellini, 961.
As applied to steam-engine governors, Rankin, 1136.
For pneumatic breaks, Bonneville (*Marchand*), 1170.

**Air pumps; compressing air—*cont.***

Hydraulic apparatus for compressing air, Pattison, 1189.
For working air and gas-engines, Johnston, 1333.
For atmospheric hammers, Manson, 1603.
Rotary engine for pumping air and gases, Beale, 1711.
Arranging steam cylinders as, Dawes & Holt, 1723.
Air compressing and condensing apparatus, Ball, 1749.
Utilising surplus pressure in pumping air, Oram, 1868.
Cooling compressed air cylinders, Nehrlich, 1873.
For ice making and cooling rooms, Marchant, 1946.
Blowing organs, &c. by compressed air, Guerra, 1955.
Working steam pumps for compressing air, Russell, 1962.
For refrigeration, Weatherby, 2115.
For raising or forcing air, Gamboni, 2185.
Mercurial, Vaughan (*Marquis of Lus-Marismas*), 2337.
General construction and arrangement of, Walker, 2371.
For working thermodynamic engines, Jenkin, 2441.
Engines for pumping air, Higginson, 2552.
Pistons for, Higham, 2657.
Working air-pumps of condensing engines, Bernays, 2674.
Rotary air compresser, Sudlow, 2962.
Metallic packing for buckets of, Johnson & Andrew, 2973.
For hydro-thermo atmospheric engines, Tommasi, 3031.
Compressing air or gases, Johnson (*Geneste & others*), 3047.
Cooling air or gases in, Johnson (*Geneste & others*), 3047.
Working, by wave-power, Bonneville (*Devlan*), 3051.
For pneumatic signalling apparatus, Canning & others, 3167.
For working pumping machines, Benson (*Cope & Maxwell*), [3361.
Rarefying or air compressing apparatus, Körting, 3471.
Steam jet apparatus for compressing air, &c., Körting, 3504.
Steam jet apparatus for compressing air, &c., Körting, 3505.
Compressing gases for working jet blowers, Körting, 3507.
Semi-portable engine and air compressor, Greig & Daniel, 3533.
Condensing air for propelling ships and machinery, Cave, 3628.
Working, in air picking looms, Church, 3773.
Utilising weight of traffic for, Johnson (*Faivre*), 3802.
Converting steam cylinders and pistons into, Cook, 3820.
Rotary, for use in rotary steam-engines, Louche, 3961.
Compressing air by water pressure, Newton (*Willans*), 4064.
Air compressing engine, Walker & Pflaum, 4129.
Compressing air, Lake (*François & Dubois*), 4190.
For traction and other engines, Bonneville (*Havard*), 4417.

**Airing clothes.** *See* "Drying."

**Air-supplying for miscellaneous purposes:**

For piling sheets of printed paper, Nicholls, 41.
For drying hay, cut crops, seeds, sewage, &c., Gibbs, 50.
In bleaching or purifying lard and tallow, Miller (*Brown*), 98.
In drying yarns after sizing, &c., Lord, 146.
In sizing yarn, Bullough, 177.
To cylinders for drying tissues, &c., Molson, 196.
In making lamp black, Clark (*Rogers*), 208.
To pneumatic telegraphs, Hopcraft, 372.
Increasing draught in steam-ships, Friedmann, 373.
In making sulphates, Hargreaves & Robinson, 448.
In heating and warming buildings, Newton (*Babbitt*), 459.
With coal gas in carbonising iron, Webster, 465.
To petroleum motor engines, Hock, 493.
In unloading grain from ships, &c., Render, 535.
In cooling and sifting flour, Palmer & Hopkinson, 572.
For carburetting gas, Yarrow, 598.
In purifying middlings, Whitmore, 626.
In carburetting air, Holland, 641.
To carburetters, Hunter, 907.
In carburetting air, Holland, 935.
To cooling liquids, Hackin, 1001.
To peat drying sheds, Radeke, 1032.
Carbonaceous blast to converting vessels, Parsons, 1053.
To thrashing machines, Day, 1221.
To cooling worts, Harrison, 1244.
In carburetting air, Muir, 1288.
In cleaning grain, bolting flour, &c., Childs, 1455.
In drying peat bricks for fuel, Knowles, 1547.
In drying yarns and fabrics, Lancaster & Dollander, 1589.
In grinding lithomarge and dry substances, Willans, 1612.
To hydrostatic pressure engines, Wilkinson, 1648.
In converting pig iron, &c. into wrought iron, Hunt, 1663.
In cooling hot sugar crystals, Alliott & Fryer, 1773.
In deoxidising iron ores, Hunter, 1838.
To carburetting apparatus, Clark (*Cayce*), 1851.
In purifying middlings, Lake (*Howes & others*), 1898.
In scutching fibres, Clark (*Hartog & Co.*), 1900.
In malting, Barlow (*Galland*), 1983.
In piling sheets of printed paper, Nicholls, 2005.
In extracting oil from hops, Johnson (*Breithaupt*), 2063.
In making sulphates of soda and potassa, Robinson, 2146.
In drying and bumbling wool, Moore, 2150.
In extracting oil from wool, waste, hair, &c., Bentley, 2262.
In cleansing ventilating shafts, Edwards, 2296.
In refrigerating, Haseltine (*Bate*), 2352.
In opening and closing gas cocks, Bean, 2390.
To heating and cooling liquids and gases, Wilson & Steel, 2397.
For mixing with steam to keep it dry, Abel (*Roberts*), 2514.

## Air supplying for miscellaneous purposes—*cont.*

To gas-burner heating apparatus, Straten, 2526.
To riddles in thrashing machines, Tucker, 2542.
In drying peat for fuel, Jensen (*Mault*), 2543.
In grinding grain, seeds, &c., Greig & Spinks, 2549.
Dampers for cockle stoves, Perry, 2559.
To heating and ventilating apparatus, Mouly, 2566.
For making carburretted hydrogen gas, Clark, 2571.
In heating and warming buildings, Ball, 2583.
Heated air to drying paper, boiling rags, &c., Taylor, 2626.
To willowing or opening fibres, Greenhalgh & others, 2697.
Regulating supply to carburetters, Clayden, 2698.
In cleaning grain and seeds, Throop (*Throop*), 3121.
To pneumatic signalling apparatus, Canning & others, 3147.
In carburetting air, Marchant, 3189.
In carburetting air, Marchant, 3190.
To combing machines, Little & Eastwood, 3213.
Hot-air in moulding fuel, Griffiths, 3233.
In carburetting air, Malam & Graves, 3240.
In carburetting air, Peacock & Bradley, 3243.
In carding wool, cotton, &c., Maclean, 3263.
To millstones, Higginbottom & Hutchinson, 3398.
In continuous web printing machines, Newton (*Hoe*), 3434.
In drying moulded sugar, Partz, 3435.
In preparing malt, Wirth (*Stenger & Walther*), 3524.
To refrigerators, for preserving food, Lake (*Bate*), 3790.
In carburetting air and gaseous bodies, Fogarty, 3792.
Centrifugal apparatus for, Rammell, 3813.
To flour dressing machines, Armstrong & Neill, 3861.
In carburetting air, Paris, 3905.
To chemical copying telegraphs, Clark (*Sawyer*), 3935.
In purifying sharps or middlings, Young, 3940.
In carburetting air, Schüssler, 4021.
In making leather-cloth, floor-cloth, &c., Thomson, 4029.
To cooling saltpetre, Haycraft, 4046.
In evaporating waste alkaline liquors, Fyfe & Bowers, 4112.
To mills for grinding corn, &c., Greig & Spinks, 4147.
Heated air for separating tin-plate scraps, &c., Morton, 4285.
In cleaning corn, Morgan-Brown (*Rose & Rose*), 4375.
To pneumatic telegraphs and signals, Cave, 4399.
In roasting or chlorodising minerals, Clarke & Smith, 4448.
In extracting oils and fats, Bentley, 4452.
In making hat bodies, Wharton & Yule, 4474.

## Air-supplying for supporting combustion:

To coke ovens, Aitken, 57.
To gas-burners, Farquhar, 112.
To lamps, Lighbody, 117.
To furnaces, Crosland, 151.
To gas and other burners, Hearson, 167.
To fireplaces and stoves, Lewis & Wood, 180.
To lamp black furnaces, Clark (*Rogers*), 208.
To gas-burners, Gedge (*Liotard*), 242.
To furnaces and fireplaces, Van de Weerd, 245.
To furnaces, Lister, 280.
And regulating to furnaces, Horrocks, 352.
To steam-ship furnaces, Friedmann. 373.
To furnaces with solid hearths, Brook & Wilson, 427.
To stoves and fireplaces, Sherman, 464.
To steam-boiler furnaces, Baxter, 482.
To fireplaces and cooking stoves, Spartali, 513.
To smelting, melting or puddling furnaces; Aitken, 576.
To steam-boiler furnaces to consume gases, Morton, 588.
To stoves, grates or fireplaces. Sanderson & Proctor, 600.
To cooking stoves, Freund, 607.
To stoves. Leoni, 629.
To steam-boiler furnaces, Rydill, 637.
To railway, ship and other oil lamps, Jones, 663.
Heated air to furnaces, Kirtley, 765.
To miners' safety and other lamps, Landau, 768.
To lamps, Souchard, 773.
Hot air to steam-boiler furnaces, Chatterton, 852.
To oil lamps, Rippingille, 920.
Hot air to steam-boiler furnaces, Hathaway, 1030.
In cleaning gas retorts, Ledingham, 1041.
To steel melting furnaces, Lewis, 1045.
To stoves, Peacock, 1065.
To steam-boiler furnaces, Hillcoat & Montgomery, 1083.
Heated air to steam-boiler furnaces, Howatson, 1083.
To steam-boiler furnaces, Jones, 1115.
To steam-boiler furnaces, Schallehn (*Stamer*), 1217.
To reverberatory furnaces, Day (*Henderson*), 1267.
To furnaces, Newton (*Houdart & Co.*), 1349.
To blast and other furnaces, Johnson, 1360.
To furnaces, Millward (*Richardson*), 1387.
To locomotive furnaces, Johnson (*Donio & Lobdell*), 1409.
To fire-places in carriages, Brookes (*Chaumont*), 1431.
To steam-boiler furnaces, Sanders, 1522.
To brick and other kilns, Bull, 1538.
Heated air to blast furnaces, Cochrane & Cowper, 1623.
To gas-burners, Stuart (*Stuart*), 1670.
To steam-boiler furnaces, Dingley, 1675.
To furnaces, De Pindray, 1719.
To steam-boiler and other furnaces, Fryer, 1774.
Tuyeres for smiths' forges, Morgan, 1775.

## Air-supplying for supporting combustion—*cont.*

To gaseous fuel producers, Sutherland, 1784.
In mixing with gaseous fuel, Sutherland, 1784.
Heated air to stoves, furnaces, &c., Dennis, 1797.
To smoke consuming furnaces, Macfarlane & Macfarlane, 1825.
To furnaces for reducing ores, Wheeler, 1847.
In consuming smoke in furnaces, Campbell & Gemmill, 1895.
In regulating oil-lamp burners, Tandy & Dryden, 1952.
To steam-boiler furnaces, Russell, 1962.
To steam-boiler and other furnaces, Nimmo, 1980.
To mechanical puddling furnaces, Johnson (*Pernot*), 1997.
In heating kilns by gaseous fuel, Harvie & Lockerbie, 2002.
To rotatory puddling furnaces, &c., Lester & Fallows, 2007.
To fire-places and steam-boiler furnaces, Black & Leiper, 2013.
Blowing the fire of marine-boiler furnaces, Wilson, 2042.
To furnaces and fireplaces, Redish, 2055.
Hot air to furnaces, stoves, &c., Bainbridge & Pinkney, 2112.
To boiler and other furnaces, Smith, 2148.
In regulating draft in boiler flues, Sanderson & Co., 2161.
To steam-boiler furnaces, Gedge, (*Chevallier*), 2176.
Increasing draught in boiler furnaces, Plunkett, 2233.
To furnaces, Waugh, 2256.
Hot blast to cupolas, blast furnaces, &c., Lake (*Essex*), 2259.
Heated air to puddling furnaces, Alleyne, 2320.
To steam-boiler furnaces, Spartali, 2367.
To furnaces, Rowland, 2379.
To apparatus for reducing manganese ores, &c., Ireland, 2395.
Hot-air to kitcheners and hot stoves or hot plates, Court, 2405.
To furnaces, for rendering fats, &c., Lake (*Firmas*), 2419.
Hot-air to steam-boiler furnaces, Jolly, 2440.
In "fuel-engines," Jenkin, 2441.
To burners of yarn singeing apparatus, Warburton, 2463.
Increasing draught in earthenware kilns, Holland, 2470.
To gas-stoves for heating & cooking, Fearns & Jackson, 2481.
Obtaining draught in camp ovens or canteens, Turner, 2484.
Dampers for boiler furnaces, &c., Eastwood & others, 2485.
Hot-air to regenerator furnaces, Abel (*Foster*), 2488.
Hot-air to cast steel furnaces, Gedge (*Lepet & Co.*), 2514.
To locomotive boilers, Newton (*Michelssen & others*), 2523.
Regulating draught in kitchen ranges, Pain, 2630.
Controlling draught in boilers, Harlow, 2683.
To "sun light" burners, Rigby & Rigby, 2692.
To furnaces burning sawdust and shavings, Hodson, 2701.
To furnaces and fire-places, Wrigley & others, 2756.
To consume smoke in furnaces, McDougall, 2759.
Air flues for stoves and kitchen ranges, Sykes, 2779.
To domestic fire-grates, Caton, 2792.
To furnaces in making sulphuric acid, De Hemptinne, 2807.
To steam-boiler, puddling and other furnaces, Wood, 2814.
Hot-blast to steam-boiler furnaces, Russ, 2846.
Regulating draught in cooking stoves, Freund, 2849.
Valve or damper for heating stoves, Truswell & Holden, 2867
Heated air to portable forges, Dods, 2925.
Hot or cold blast to furnaces, Lyttle, 2930.
Increasing draught in boiler furnaces, Powleson. 2959.
To roof, ship, signal and street lamps and burners, Silber, 2968.
To open fire-places, Lane, 2975.
Hot-air to ovens, stoves, furnaces and ranges, Deguine, 2983.
To fire-boxes of generators, Waller, 3017.
To kitchen ranges, Constantine & Hearson, 3088.
To oil-lamps, Clark (*Granier*), 3145.
To railway carriage and mining oil lamps, Martin, 3165.
Loaded with water to furnaces, Lake (*Jasper*), 3215.
To railway carriage, mine and signal lamps, Martin, 3247.
For increasing druft in furnaces, Clark (*Gregory*), 3258.
In roasting ores, Clark (*Heiligendorfer*), 3259.
Regulating blast to boiler furnaces, Messrs. McNaught, 3264.
To cooking ranges, Corbitt, 3283.
To steam-boiler & other furnaces, Darlaston & Hawkins, 3292.
To Bunsen burners, Wallace, 3318.
To street and other lamps, Parkman (*Forbes*), 3379.
Heated air to furnaces, Stirling & Peacock, 3419.
To railway carriage, signal and other oil lamps, Smith, 3473.
Heating and drying air for blast furnaces, &c., Barclay, 3488.
Regulating draught in steam-boiler furnaces, Arnold, 3501.
Heated air to furnaces, fire-places, &c., Körting, 3507.
To blast and other furnaces, Johnson, 3545.
Increasing draught in oil lamps, Doty, 3605.
To steam-boiler furnaces, Lake (*Cooke & Foss*), 3712.
To furnaces for consuming smoke, Jowett & Hunter, 3739.
Heated air to steam-boiler furnaces, Cook, 3890.
In puddling furnaces, Smyth & Simpson, 3895.
Dampers for lime, brick and pottery-ware kilns, Williams, 3966.
To stoves, Ritchie, 4043.
Hot-air to steam-boiler furnaces, Péne, 4047.
To steam-boiler and other furnaces, Salmon, 4107.
Heating air for furnaces, Lacordaire (*Fourlinnie*), 4168.
Heated air to furnaces, Regan, 4218.
Regulating supply to Argand gas-burners, Sugg, 4227.
Controlling dampers of boiler furnaces, Royle, 4237.
To oil lamps, Johnson (*Hitchcock & others*), 4283.
Blast heating furnaces for metals, Stone, 4298.
To furnaces for consuming smoke, Gedge (*Dubois*), 4301.
In carbonising iron, Bonneville (*Eames*), 4346.
Hot-air to steam-boiler furnaces, Cheesbrough (*Ford*), 4381.
Hot-air to steam-boiler furnaces, Cheesbrough (*Ford*), 4383.

Air-supplying for supporting combustion—*cont.*

Regulating supply to furnaces, Prideaux, 4440.
To straw-burning boiler furnaces, Marshall & Lister, 4467.
Regulating draft in fire-places, Hogg, 4468.

Air toy-guns or pistols. *See* "Toys."

Alarm-clocks. *See* "Clocks."

Alarms. *See* "Signals."

Albums. *See* "Books."

Alcohol; alcoholic liquids:

Ozonising, Monckton, 265.
Purifying, Comte de Besurepaire de Louvagny, 591.
Improving flavor of and ageing, Phibbs, 802.
Obtaining, from fermented juices, Piver, 1607.
Ebullioscopes for, Clark (*Malligand & Brossard-Vidal*), 1885.
Testing or analysing, Gedge (*Bonjour*), 2124.
Arresting alcoholic fermentation, Hunt (*Reynoso*), 2160.
Obtaining, from residues, Henry (*Faucheux*), 2463.
Deodorising and purifying, Monckton, 2581.
Obtaining, from Syrian Mallow, Lake (*Montmagnon*), 4191.
Recovering, used in extracting substances, Braun, 4348.

Alcohol (distilling). *See* "Distilling."

Ale and beer. *See* "Brewing."

Alizarine. *See* "Dyes."

Alkalies:

Making sesquicarbonate of ammonia, Chapman, 38.
Coating or lining pipes for conveying, Fottrell, 77.
Obtaining potash & recovering soda, Murdoch (*Lesage*), 97.
Making carbonate of soda and saving fuel, Black & Hill, 173.
Making bichromate of potash, Smith, 224.
Caustic soda boiler or concentrator, Robinson, 236.
Producing carbonate of ammonia, Monckton, 265.
Producing carbonate of ammonia, Molloy & Fitzgerald, 266.
Obtaining ammonia, Scott & Spence, 283.
Making bicarbonate of soda, Richards, 376.
Fire-bars for alkali furnaces, Newbold, 385.
Making soda & potassa sulphates, Hargreaves & Robinson, 448.
Making oleates of soda, potassa and ammonia, Watterson, 456.
Ammoniacal liquor from furnace or cupola gases, Aitken, 576.
Obtaining ammonia, Mc Beath, 601.
Making sulphates of soda and potash, Hunt, 831.
Extracting potash, Hughes (*Daudenart & Verbert*), 913.
Making prussiates of potassa and soda, Nield & Foster, 914.
Obtaining sulphate of ammonia, Stuart, 1276.
Furnaces for roasting salt cake, &c., McDougall, 1311.
Obtaining sulphate of ammonia, Lake (*Hesse*), 1415.
Recovering soda from soda lyes, Stevenson, 1469.
Utilising "chrome waste" in making bricks, McAdam, 1529.
Obtaining carbonate of soda, Knowles, 1550.
Recovering soda from paper lyes, Brown, 1574.
Packing caustic soda or potash, Newton (*Babbitt*), 1601.
Recovering soda in making soap, Newton (*Tardani*), 1614.
Producing caustic, Johnson (*Juron & others*), 1672.
Making soda or potash sulphates, Königs & Henderson, 1742.
Recovering ammonia, Newton (*Phillips*), 1810.
Recovering soda and potash, Hunter, 1811.
Producing phosphates of soda and potash, Hunter, 1811.
Recovering silicates of soda and potash, Hunter, 1811.
Obtaining phosphates of the, Tanner, 1915.
Making sulphate of potash, Gorman, 1971.
Making sulphate of soda and sulphate of potash, Hunt, 2016.
Making sulphates of soda, &c., Hargreaves & Robinson, 2018.
Making sulphates of soda and potassa, Robinson, 2145.
Rendering potash and soda caustic, Imray (*Kühne*), 2242.
Making silicates of soda and potassa, Beatson, 2272.
Obtaining potash and soda salts, Thomas (*Girard*), 2347.
Extracting ammoniacal salts from sewage, Lyttle, 2446.
Recovering carbonate of ammonia from sewage, Scott, 2450.
Making ammonia and its salts, Henry (*Faucheux*), 2463.
Making carbonates of soda, Henry (*Faucheux*), 2463.
Making sulphite of soda, Henry (*Faucheux*), 2463.
Obtaining carbonates of potassa, Henry (*Faucheux*), 2463.
Obtaining nitrate of potassa, Henry (*Faucheux*), 2463.
Obtaining ammonia from gas, &c., Johnson (*Silliman*), 2520.
Extracting ammoniacal compounds, Scott, 2568.
Making prussiates of soda and potash, Nield & Foster, 2624.
Utilising waste in making prussiates, Nield & Foster, 2624.
Making soda & potash, Johnson (*Grüneberg & Vorster*), 2639.
Collecting ammonia in making sugar, Johnson (*Marot*), 2713.
Obtaining ammonia, Henry (*Lair*), 2802.
Producing bisulphite of soda, &c., Payne, 2893.
Producing sulphite of ammonia and sulphates, Payne, 2893.
Fuel chamber and blast nozzles of furnaces, Lyttle, 2960.
Sulphate of soda and sulphate of potash, McDougall, 3003.
Making sulphates of soda and potash, Hunt, 3005.

Alkalies—*cont.*

Furnace, with rotating annular bed, Schofield, 3023.
Making soda and potash and saving fuel, Mactear, 3242.
Saving nitre in making sulphuric acid, Scott, 3417.
Obtaining hydrochlorate of ammonia, Newton (*Rousseg*), 3451.
Obtaining ammoniacal salts, Scott, 3472.
Making acetate and sulphate of soda, Monckton, 3509.
Preparing hexmetaborate & hexborate of soda, Dickson, 3763.
Separating sulphate of soda from solutions, Sneius, 3780.
Stove for obtaining crystals of ammonia, Perry, 3827.
Making acetate of soda, Condy, 4037.
Refining and recovering saltpetre, Haycraft, 4046.
Obtaining ammoniacal liquor residuum, Lyttle, 4099.
Recovering alkali from waste liquors, Fyfe & Bowers, 4112.
Recovering from paper makers' lyes, Roeckner, 4117.
Distilling ammonia in ice-making, Benson (*Beath*), 4152.
Producing combinations of gases and, Hunt (*Girdwood*), 4153.
Producing carbonates of soda, Mond, 4175.
Obtaining ammonia from sewage, Scott, 4305.
Producing ammonia, Clark (*Maxwell-Lyte*), 4308.
Producing carbonate of soda, Mond, 4341.
Oxidising red liquor from black ash, Speir & Mather, 4396.
Recovering ammonia, Clarke & Smith, 4446.
Making carbonate or bi-carbonate of soda, &c., Müller, 4459.

Alloys of metals. *See* "Metallic alloys."

Alphabet (teaching). *See* "Teaching."

Alum:

Treating muriates, &c. of soda, &c. for making, Beatson, 2272.
Calcining aluminous material in making, Beatson, 2272.

Alumina:

Treating substances to obtain sulphates, &c., Archbold, 2[illegible].
Making chloride of aluminium, Brewer (*Joly*), 453.
Obtaining, for making alum, Beatson, 2272.
Obtaining hydrate of, Johnson (*Grüneberg & Vorster*), 2[illegible]
Decolorising acetate of lime for acetate of, Condy, 4037.

Ambulances. *See* "Camp equipage."

Amianthus. *See* "Asbestos."

Ammonia. *See* "Alkalies."

Ammunition. *See* "Shot."

Anatomy (teaching). *See* "Teaching."

Anchors:

Constructing "trunnion," Williams & Gurr, 163.
Constructing, Lake (*Fewkes*), 1555.
Bridling cables to, Glover, 2196.
Working messengers for lifting, Bremme, 2361.
Pontoons for recovering, from wrecks, Darley, 2782.
Vessels for raising, shifting, mooring, &c., Noad, 2984.
With releasable arms and flukes to prevent loss, Clark, 3[illegible]
Constructing "stockless," Smith, 4291.
Constructing, Thomas & Nicholson, 4443.

Anchors for land tillage. *See* "Tilling."

Anemometers:

Maximum, medium and minimum, Ballingal, 1177.
Indicating and registering speed of wind, Wier, 1429.
General construction, Lowne, 1567.
Indicating and registering speed of wind, Wier, 2482.

Angles (dividing). *See* "Mathematical instruments."

Angular motion (reversing, &c.). *See* "Propelling."

Aniline. *See* "Dyes."

Animal oils. *See* "Oils (animal)."

Animal traps. *See* "Traps."

Annealing, casehardening and tempering metals:

Tempering saws, &c., Morgan-Brown (*Simonds & Person*), 15[illegible]
Furnaces for tempering iron, steel, &c., Robertson, 1785.
Converting razors, tools, &c. into cast steel, Johnson, 2[illegible]
Compound or paste for, edge tools, &c., Johnson, 2[illegible]
Tempering and forming saws, &c., Simonds & Person, 2[illegible]
Ovens and pots for annealing wire, Littlewood, 3192.
Carbonising iron for magnets and bearings, Monckton, 3[illegible]
Casehardening or carbonising iron articles, Monckton, 3[illegible]
Retort ovens for ingots or castings, Smyth & Simpson, 3[illegible]
Shaping, &c. pots, boxes, stands and retorts for, Morgan, 3[illegible]
Cutting irons for separating castings in, Morgan, 3347.
Tempering saws, &c., Jensen (*Simonds & Person*), 4322.

Annealing glass. *See* "Glass."

**Anthracene:**
From heavy coal tar oils, Lucas, 317.
Alizarine and isopurpurine from, Auerbach & Gessert, 1269.
Obtaining "anthraquinone," Rumpff (*Bayer & others*), 2071.
From liquid hydro-carbons, &c., Curie, 2079.

**Anthraquinone.** *See* "Anthracene."

**Anti-fouling compounds.** *See* "Oxidation."

**Antimacassars:**
Clasping pin for securing, upon chairs, Armstrong, 666.
Weaving fabrics in lace machines for, Wright & Fox, 3903.

**Antiseptics; antiseptic compounds:**
Vaseline, Chesebrough (*Chesebrough*), 1012.
Cupralum or "ferralum," Bond, 1510.
Boracic acid and its compounds, Lindemann, 1753.
Solution for preserving meat, fish, game, &c., Clark, 1837.
Boracic acid, borax, salt and saltpetre, Herzen, 2032.
Antiseptic fertiliser, Newton (*Chesebrough*), 2451.
Applying peat in preserving food, Monckton, 2581.
Antiseptic paper for use in waterclosets, &c., Hart, 3894.

**Anvils:**
Securing steel surfaces to, by mechanical means, Evans, 969.
Constructing anvils and anvil frames, Sutherland, 1784.
Combined water and air anvil bed, Lake (*Hitchcock*), 3231.

**Apollinaris water.** *See* "Aërated liquids."

**Apples (slicing).** *See* "Preserving food."

**Aprons for carriages.** *See* "Carriages."

**Aquariums:**
Compound material for, and mode of making, Brannon, 2027.
Constructing, Hyatt, 3171.

**Aqueducts:**
Compound material for and constructing, Brannon, 2128.

**Arcades.** *See* "Buildings."

**Architectural ornaments.** *See* "Ornamenting."

**Area gratings.** *See* "Gratings."

**Arithmetic (teaching).** *See* "Teaching."

**Armour plates:**
Rolling, Dyson, 122.
Rolling compound, Johnson (*Harrel Bros.*), 663.
Treating iron in wire or strips for making, Lvoff, 1479.
Preserving ships', from corrosion, Ara & Del-Bubba, 1595.
Chilling striking part of, Macintosh, 2945.

**Artificial black band iron ores.** *See* "Smelting."

**Artificial butter.** *See* "Butter."

**Artificial ice.** *See* "Refrigerating."

**Artificial ivory.** *See* "Bone."

**Artificial leather.** *See* "Leather."

**Artificial manure.** *See* "Manure."

**Artificial skins.** *See* "Leather."

**Artificial stone.** *See* "Stone."

**Artillery.** *See* "Fire-arms."

**Artists' materials:**
Apparatus to contain, Shedlock, 558.
Desk or easel and drawers for, Camp (*Knight*), 858.
Lead pencils, Morrison, 2316.
Self-supplying mucilage brush, Clark (*Hussey*), 3440.

**Asbestos and amianthus (treating and applying):**
Composition for making bearings, Cohné, 37.
In making packing, Scaife, 176.
Treating and applying, Hyatt, 478.
In making cigar-lights, matches, wicks, &c., Hynam, 615.
To fireproofing illuminating gratings, Hyatt, 783.
To wick burners of hot air balloons, Ménier, 1144.
Treating and applying, Cleghorn & Paterson, 1145.
To compounds used in ships' fittings, Brannon, 2028.
In making glass with bas-relief surfaces, Hyatt, 2572.
To filters, in making sulphuric acid, De Hemptinne, 2807.
To upper part of lamp wicks, Martin, 3247.
To lamp wicks, Protheroe (*Protheroe*), 4462.

**Ash-closets.** *See* "Waterclosets."

**Ash-pans and fenders.** *See* "Fenders."

**Asphalte:**
Applying protective coating to, Newton (*Babbitt*), 1601.
Bituminous mastic or cement, Rae, 1674.
Mastic of, Skinner, 3217.

**Atmospheric breaks.** *See* "Breaks for railways."

**Atmospheric engines.** *See* "Air-engines."

**Atmospheric hammers.** "*See* Hammers."

**Autographic printing.** *See* "Printing."

**Automatic breaks.** *See* "Breaks for railways."

**Automaton toys.** *See* "Toys."

**Aviaries (fountain troughs for).** *See* "Troughs."

**Awnings:**
Or coverings for tram-cars, steam-boats, &c., Smith, 2739.
Shaping and arranging sheets for, Hyatt, 3171.
Or coverings for pavements, Inghels, 4233.

**Axes (indicating position, &c. of).** *See* "Indicating."

**Axles; axle-boxes; journal-boxes:**
Composition for bearings, Cohné, 37.
Lubricating, Avery, 144.
Rolling railway, Sykes & others, 145.
Antifriction axle-box, Collingridge (*Folliet & Gally*), 374.
Making & lining axle and journal-boxes of asbestos, Hyatt, 478.
Sole or socket and oiling, Bonneville (*Broux & Broux*), 644.
Railroad car journal-boxes; oiling same, Hughes (*Smith*), 750.
Packing car journal-boxes, Bonneville (*Devlan*), 767.
Securing portable engine, Clayton & Shuttleworth, 1142.
Lubricating, Bonneville (*Broux*), 1230.
Journal-boxes for lift and force pumps, Lake (*Baxter*), 1286.
Of compressed iron wire or strips, Lvoff, 1479.
Division axles for carriages, tramcars & railways, Sands, 1691.
Making in two half lengths, West & Brookes, 1914.
Railway carriage, Haseltine (*Higley*), 1936.
Fitting wheels to, and "radiating" axle-boxes, Dobson, 1956.
Fixed, for railway, tramway and road vehicles, Palmer, 1998.
Ball-bearings for, Wirth (*Kleinpell & Dramburg*), 2206.
Journal-boxes for mill shafting, Barber (*Crane*), 2542.
Lubricating hub or axle-box, Barber (*Crane*), 2543.
Applying hot-neck grease to roll journals, Key, 2350.
Railway journal-boxes & axles, Clark (*Miltimore & others*), 2498.
Piling steel and H iron for making, Griffiths, 2548.
Turning journals of, at one operation, Atock, 2716.
Journal-boxes for rolling mill rollers, Robinson, 2718.
Arranging movable tram-car, Betteley & Sharer, 2765.
Journal spiral springs, Byron (*Godley*), 2817.
Preventing axle bearings heating, Clark (*Hussey*), 3452.
Of "nickelised" iron, Monckton, 3509.
Packing and lubricating car and other, Gedge (*Pierson*), 3530.
Scraping oil from, to prevent waste, Gedge (*Pierson*), 3530.
For common road carriages and oiling same, Pickin, 3592.
Dust and dirt proof railway carriage, Clark (*Hussey*), 3678.
Oiling device for journal-boxes, Lake (*Shaw*), 4088.
Journal-boxes of forge fan gear, Rollins (*Kellogg*), 4136.
Axle-boxes for railway engines and vehicles, Longridge, 4163.
Seamless hollow railroad car axles, Newton (*Brooks*), 4244.
Radial axle-boxes and guides for railways, Widmark, 4331.
Splints, &c. for repairing axles, Tongue (*Devriès*), 4361.
Adjusting and oiling journals of, Burnup (*Barber*), 4398.
Adjustable axles for tram-cars, Kirkwood & others, 4408.

**Azotic acid.** *See* "Acids."

## B.

**Bagatelle tables.** *See* "Games."

**Bagauze.** *See* "Sugar."

**Bags and sacks:**
Joining and seaming, Cox, 115.
Elevating, emptying, filling, &c., Lewis & Lewis, 252.
Weaving, Laird & Rutherford, 671.
Mail and despatch, of asbestos, Cleghorn & Paterson, 1145.
Wiping off excess of paste in making paper, Anderson, 1195.
Detaching fabric from, and frames of fancy bags, Corbitt, 1235.
Shooting, filling and transporting, Mitchell, 1302.
Weaving, Laird & Rutherford, 1304.
Making paper, Hughes (*Daugoise*), 1335.
Packing or making up, for shipment, Laird, 1411.

**Bags and sacks—*cont.***
Compound fabric or lining for, Rowan & Reid, 1507.
Waterproofing leather for, Frankenburg, 1650.
For phosphates, saltpetre, guano, &c., Crossdale, 2187.
Sack elevating platform, Tooley, 2212.
Compounds or "Plastique" for making, Lake (*Bell*), 2250.
Applying break power to sack-hoists, Bourgougnon, 2292.
Fastenings for, Hathaway, 2302.
Felt for making travelling bags, Job, 2433.
Or clothing receptacles for camp fittings, Turner, 2484.
Machine for fancy stitching carpet, Byron (*Merrill*), 2750.
Folding leather for, Cheesbrough (*Platts & Walden*), 2928.
Sacking corn and seeds, Sainty, 2937.
Sewing-machine for stitching, Garland, 3043.
Sacking salt after being crushed, Barrow, 3139.
Making sheet metal satchels, &c., Hirschmann (*Philipp*), 3209.
Making single and double paper, Pérès (*Douce*), 3327.
Weighing and lifting arrangement for, Wilkerson, 3347.
Holding sacks while filling on sack barrows, Tooley, 3450.
Lifting, tilting and emptying sacks, Tooley, 3631.
Lifting and handling sacks, Perkins, 3710.
Paper-bag making machinery, Clark (*Lewis & others*), 3713.
Material for making, Wilkinson, 4026.
Sewing-machine for, Garland & Gove, 4225.
Gathering and hemming sacks, Gove, 4226.
Postal sample bags, Baroulo, 4319.
Compounds or "Plastique" for making, Lake (*Bell*,) 4343.
Artificial skins for making, Brown, 4459.

**Balances for weighing.** *See* "Weighing."

**Balconies.** *See* "Buildings."

**Bale-ties.** *See* "Packing."

**Ball and socket joints:**
For rock drill cylinders, Sturgeon & White, 2085.

**Ball bearings.** *See* "Bearings."

**Ball cocks.** *See* "Cocks."

**Ballasting ships' boats.** *See* "Ships' boats."

**Balloons.** *See* "Aërial-machines."

**Ballot apparatus.** *See* "Voting."

**Balls (levelling surfaces of).** *See* "Turning."

**Balls, shot and bullets.** *See* "Shot."

**Bandages.** *See* "Surgery."

**Bands and belting for machinery:**
Cleaning driving surfaces of, McMillan, 150.
Coupling, taking up or tightening, Griffin, 271.
Waterproof mastic for coating, joining, &c., Bageau, 649.
Vaucanson or gearing chains, Clark (*David*), 975.
Uniting belts by screws, Lake (*Mundell & Partridge*), 1233.
Artificial or "vegetable" leather for, Muratori, 1524.
Cutting or paring leather for joining, Wheelhouse, 1877.
Couplings for, Chase, 1918.
Cutting ends of leather straps for joining, Bateman, 1979.
Wire belting, Greening & Greening, 2019.
Belt-shipping device for looms, Johnson (*Burlock*), 2584.
Of combined leather and woven fabric, Fleming, 2592.
Strengthening, Courbier & Villalard (*Sourzac*), 3092.
Encasing strips of metal, &c. in, Ingram, 3154.
Flat links for making and fastening, Gandy, 3188.
Of combined india-rubber, wire gauze, &c., Ingram, 3437.
Fabric or "artificial leather" for, Meech, 3484.
From paper and vegetable substances, Wigzell & others, 4085.
For spinning and doubling frames, Rowbottom, 4353.
Uniting and disconnecting mill bands, Lake, 4432.

**Bands and belts for wear.** *See* "Belts."

**Bands (endless):**
For raising and lowering pictures, &c., Townsend, 2217.

**Bands or hoops.** *See* "Hoops."

**Barges.** *See* "Ship-building."

**Barometers:**
Recording variations in, Johnson (*Redier & Co.*), 1587.

**Barrels and casks.** *See* "Casks."

**Barrels for fire-arms.** *See* "Fire-arms."

**Barrows; trucks; trolleys:**
For carrying, tilting, &c. sacks, Lewis & Lewis, 252.
Wheelbarrows and springs, Mills (*Rolland & Vanhoorde*), 635.
Used in brick-making, Pinfold, 743.

**Barrows; trucks; trolleys—*cont.***
Sack-barrows and trolleys, West & Brookes, 1914.
Propelling trolleys in charging gas retorts, West, 1978.
For collecting and binding corn, Mewburn (*Saladin*), 3344.
Holding sacks while filling on sack barrows, Tooley, 3450.

**Baryta:**
Crushing and reducing to powder, Cole, 181.
Vertical mill for grinding, Heydon & Evans, 844.
Salts, carbonates, &c. of, Hughes (*Daudenart & Verbert*), 911.
Caustic, Hughes (*Daudenart & Verbert*), 911.
Revivifying, Hughes (*Daudenart & Verbert*), 913.
Crushing and reducing to powder, Cole, 2456.
Nitrate of, for mixing with gun-cotton, Mackie & others, 3612.

**Basins and docks.** *See* "Docks."

**Basins (sugar).** *See* "Sugar-basins."

**Bas-reliefs.** *See* "Sculpture."

**Bath chairs:**
Expanding hub and radial spokes for wheels of, Starley, 3269.

**Baths:**
Constructing and arranging valves of, Tylor & Tylor, 277.
Connecting stoves with bathing tubs or, Neuhoff, 627.
Graduated tap for supplying hot and cold water, George, 949.
Combined douche, spray and plunge, Smeaton & Tylor, 1625.
Hot air, vapour, shower and medicated, Wyatt, 1406.
Heating water for, Mouly, 2566.
Portable vapour, Dufrené (*Devaux*), 2776.
Stove or air heating apparatus for, Truswell & Holden, 2987.
Boilers for heating water for, Heaps & Wheatley, 2986.
Valve for regulating water-supply, Pollard & Carter, 3730.
Portable hot dry air baths, Money, 4182.
Baths with covers used as travelling trunks, Evans, 4260.
Consuming smoke in generators for, Gedge (*Dubois*), 4341.
Regulators and valves or waste preventers for, Powell, 4413.

**Batteries and fortifications:**
Armour plates for, Johnson (*Marrel Bros.*), 663.
Armour ribs or frames for, Roseman, 2844.
Mastic of asphalte for forts, Skinner, 3217.

**Batting fibres.** *See* "Spinning (batting)."

**Bayonets:**
Sword bayonet and intrenching tool, Burton, 884.
Shank and fastenings of spade, Hughes (*Chillingworth*), 1453.

**Beacons.** *See* "Lighthouses."

**Beaming machines.** *See* "Warping."

**Beams, girders, stringers, ribs, rafters and arches:**
Rolling stringers and girders, Dyson, 123.
Hollow, for fireproofing buildings, Taylor 751.
Preserving, Muratori, 931.
Materials for and constructing, Brannon, 1249.
Ribs for constructing buildings, Abel (*Poutiloff*), 1277.
Girders for floating bridges or ferries, Obach, 1343.
Constructing bridge, &c., Brannon, 1372.
Casting and rolling steel girders, Fox, 1486.
Various modes of making fire-proof beams, Hyatt, 1715.
Compound material for and constructing, Brannon, 2128.
Bending timber for arches, Rothwell, 2464.
Girders for hydraulic ship lifts, Scott, 2502.
Making and fireproofing rafters and, Hyatt, 2550.
Combining, &c. wooden strips for forming, Plimpton, 3568.
Rolling girders, Brown, 3640.

**Bearings, bushes and steps:**
Composition for, Cohné, 37.
Wringing and mangling machine, Marshall & Cromkill, 115.
Lubricating, Avery, 144.
Lubricating and preventing dust or grit entering, Heaton, 188.
Footsteps and bolsters for spindles, Butterworth, 228.
Antifriction bushes for pumps, Broadfoot, 239.
Electro-magnetic engine, Monckton, 265.
Lubricating, Collingridge (*Folliet & Gally*), 374.
For carding rollers or other cylinders, Leigh, 398.
Cooling and oiling, Hargreaves & Robinson, 448.
Bolsters and steps for spindles, Newton (*Wilson & Fell*), 652.
Asbestos bearings, Hyatt, 478.
Oiling steps of coal crusher shafts, Smith & others, 509.
Sole or socket and oiling, Bonneville (*Broux & Broux*), 614.
Bearing plate for railway car axles, Hughes (*Smith*), 758.
Oiling and locking nuts on, Northcott, 944.
Thrust, for screw propeller shafts, Lake (*Godfrey*), 995.
Roller, for bicycles, Grout, 1163.
Water-way, for boiler furnaces, Stephenson & Pickup, 1294.
Lubricating, Bonneville (*Broux*), 1230.
Mortising pillow blocks, Bonneville (*Baville*), 1231.

**Bearings, bushes and steps—*cont.***
Lubricating, Greenslade, 1241.
For axles of lift and force pumps, Lake (*Baxter*), 1286.
And steps for spindles, Brooks & others, 1502.
Metallic alloys for, Vaughan (*Künzel*), 1628.
Bush for piston rod glands, Angus & Hammersley, 1743.
Centrifugal machine, Hepworth & Paulding, 1798.
Oiling spindle steps, &c., Booth (*Draper & Draper*), 1835.
Cooling sulphate exhauster, Hargreaves & Robinson, 2018.
Tallow lubricator for, Rumsey & Davies, 2058.
Cooling fan apparatus bearings, Robinson, 2145.
Ball, for axles & shafts, Wirth (*Kleinpell & Dramburg*), 2206.
For tipping carts, Warner & Woods, 2303.
For mill shafting, Barber (*Crane*), 2342.
Lubricating bush for bobbin spindles, Combe, 2348.
Long collars of throstles, &c., Bullough (*Townson*), 2400.
Applying bushes in repairing crank shafts, Haggus, 2442.
Bolsters for spindles, Haseltine (*Rabbeth*), 2497.
Bolsters and footsteps for spindles, Raworth, 2707.
For rolling mill rollers, Robinson, 2718.
Bearings for cylinder trunnions, Scott (*Haag*), 2753.
Bolster spiral springs, Byron (*Godley*), 2817.
Bushes for engine shafts, Waller, 3017.
Cooling and lubricating, Bessemer, 3274.
Preventing bearings heating, Clark (*Hussey*), 3452.
Of "nickelised" iron, Monckton, 3509.
Devices for lubricating, Gedge (*Pierson*), 3530.
Footsteps, bolsters and collars; oiling same, Revell, 3862.
Compound bush for pulley blocks, McAdam, 3966.
Oiling bearings of revolving shutters, Todd & Wright, 3968.
Oiling spindle steps & bolsters and other, Lake (*Shaw*), 4068.
Bushings for fan shafts of forges, Rollins (*Kellogg*), 4136.
Oiling spindle steps, Stott & others, 4279.
For axles of tram-cars, Kirkwood & others, 4408.

**Beating flax.** *See* "Spinning (batting)."

**Beating seed casks.** *See* "Casks."

**Beds and mattresses.** *See* "Upholstery."

**Bedsteads.** *See* "Furniture."

**Bee-hives:**
Cutting out wooden, Johnson (*Goulas & Co.*), 3893.

**Beer (brewing and treating).** *See* "Brewing."

**Beer-engines:**
Pump for withdrawing two or more liquids, Wilsher, 1543.
Measure or tell-tale for, Pontifex, 1753.
Raising and expelling beer by air-pressure, Murphy, 2267.
Glass and other pipes for, Bycroft, 2701.
Constructing, of "nickelised" iron, Monckton, 3509.

**Beetling fabrics and yarns.** *See* "Finishing."

**Bellows.** *See* "Blowing-engines."

**Bells:**
Alarm, for lighthouses, &c., operated by waves, Pattison, 249.
Using a metallic convolute wire coil as a call, D'Humy, 2929.
Bell-action for pneumatic signals, Canning & others, 3147.
Electric bell apparatus for hotels, Jensen (*Wiman*), 3533.
Alloy for making glockenspiels, Potter, 3962.

**Belts and bands for wear:**
Friction buckles for, Dethiou, 542.
Swimming, Count de Goddes de Liancourt, 909.
Hooks and studs of fasteners for, Clarke, 1385.
Connecting ends of galvanic bands, Pulvermacher, 2172.
Materials for and making ladies' belts, Fyfe, 2234.
Forming lever buckles for, Fisher, 2595.
For cartridges, &c. ("Grantley Berkeley belt"), Budden, 2661.
Travelling, despatch, tourist and anglers', Budden, 2661.
Making and adapting safety pins to, Snow (*Greely*), 2334.
Self-inflating swimming and life, Count de Liancourt, 3590.
Buckle for fastening voltaic bands, Pulvermacher, 3937.
Hollow flexible voltaic bands, Pulvermacher, 3937.

**Belts for machinery.** *See* "Bands."

**Bending timber.** *See* "Wood."

**Bengal lights.** *See* "Fire-works."

**Benzine:**
Obtaining, in distilling gas tar, Clark (*Jenty*), 2270.

**Berths for ships.** *See* "Ship-building."

**Beurrine.** *See* "Butter."

**Beverages:**
Ozonising, Monckton, 265.
Non-alcoholic beer, Lockwood, 289.
Artificial apollinaris water, Smith, 345.
Pump for use in making "Shandygaff," Bruce, 4180.
Nutritive effervescing drink, Tallerman & Clarke, 4340.
Refrigerating apparatus, &c. for making, Ross, 4414.
Compound artificial mineral waters, Ellis, 4437.

**Bib cocks.** *See* "Cocks."

**Bichromate of potash.** *See* "Alkalies."

**Bicycles.** *See* "Velocipedes."

**Bilge pumps.** *See* "Pumps."

**Bill files.** *See* "Files and clips."

**Billiards.** *See* "Games."

**Binding books.** *See* "Books."

**Binding or gaveling grain.** *See* "Reaping."

**Bins or lockers:**
For shop fixtures, Wilson, 4110.

**Bird cages:**
Puncturing metal strips and threading wires, Robotham, 3554.

**Biscuits.** *See* "Bread."

**Bisulphide of carbon:**
Furnaces and retorts for making, Johnson, 687.
Recovering, in treating cuttings of hides, &c., Bentley, 1478.
Recovering, in treating cotton waste, Newton (*Ralph*), 1951.
Recovering, in extracting oils and fats, Bentley, 4452.

**Black ash.** *See* "Alkalies."

**Black lead.** *See* "Plumbago."

**Black plates.** *See* "Rolling metals."

**Blacking:**
Waterproof paper for wrapping up, Clayton, 1037.
For metal founders, Sellars, 1491.
Grinding carbonaceous matter for foundry, Willans, 1612.
For metal founders, from residual wood, &c., Pattison, 3029.
For metal founders, from common coke, &c., Pattison, 3030.
For metal founders, from still coke, &c., Allan, 3282.
For metal founders, from peat, Davies & others, 4338.
Obtaining black for making, Knab, 4421.

**Blast and blowing engines.** *See* "Blowing."

**Blast furnaces.** *See* "Furnaces."

**Blasting; blasting compounds:**
By imperfect insulated conductors of electricity, Walker, 293.
Electrical machine for, Bousfield (*Smith*), 380.
Waterproofing mining charges, Clark (*De Froideville*), 1275.
Applying heat in making holes for, Werdermann, 1438.
Electricity as applied to, Johnson (*De Mersanne*), 1446.
Fuses, matches and squibs, Daddow, 1558.
Compound for, Gottheil (*Rhenish Dynamite Co.*), 1566.
Compound for, Mackie & others, 2062.
Cartridges for, Lloyd (*Holt & others*), 2385.
Hydrocarbonated cartridges, &c. for, Davey & Watson, 2641.
Lever machine or motor for drilling holes for, White, 2892.
Gun-cotton and cartridges for, Mackie & others, 3612.
Compounds and charges for, Faure & Trench, 3781.
Compound ("Carbonzotine"), Gray (*Cahuc & Soulages*), 3934.

**Bleaching fabrics, fibres and yarns:**
Hot-air apparatus for drying yarns after, Lord, 146.
By ozonising, Monckton, 265.
Size, to facilitate, Blackburn, 540.
Boiler and receiver for use in, Gedge (*Fabas*), 1193.
System of bleaching linen fabrics, &c., Potter, 1690.
Producing sulphate of soda for, Henry (*Faucheux*), 2483.
Recovering matters from waste waters, Mackay, 3751.
Method and apparatus for, Palmer (*Balna*), 4087.
Using baryta for bleaching silk, Tessié du Motay, 4172.
Heating baths, Comte de Beaurepaire de Louvagny, 4450.

**Bleaching glue.** *See* "Glue."

**Bleaching gums.** *See* "Gum."

**Bleaching oils and fats:**
Tallow, lard and other fatty matters, Miller (*Brown*), 98.
By ozonising, Monckton, 265.
Decolorising paraffin, Miller & Miller, 2040.
Tallow, lard, grease & oil, Speir & Mather, 4336.

**Bleaching paper pulp:**
By ozonising, Monckton, 265.
Flax, hemp, jute and manilla in making pulp, Bevan, 1473.
Hop bines and roots for paper, Barling, 2357.
Fibrous substances for stock, Tiffany (*Meech*), 2956.
Fibres of "Gombo" plant, Clark (*Chamas & others*), 3877.
Fibres of sword rush or grass, straw, &c., Gray, 4322.

**Bleaching powder.** *See* "Lime."

**Blind stamping.** *See* "Stamps."

**Blinds (window).** *See* "Window-blinds."

**Blocks for building.** *See* "Bricks."

**Blocks for printing.** *See* "Printing."

**Blocks or pulley blocks.** *See* "Pulleys."

**Blood manure.** *See* "Manure."

**Blowing engines; fans; bellows:**
Pistons and cylinders of, Bousfield (*Manley*), 58.
Fan for ventilating purposes, Van de Weerd, 245.
General construction, Kayser (*Schultz*), 488.
Compressing air to work blast engines, Johnston, 531.
Or beaters for feeding fuel to furnaces, Smith & others, 569.
Hot blast, Johnson (*Hirsch*), 594.
For furnaces, retorts, ventilating and freezing, McBeath, 601.
Direct-acting engines for, Fielding, 788.
Reciprocating, without gearing, cranks, &c., Pickering, 932.
Working punkahs by fluid pressure, Imray, 981.
Valves of blast engines, Lockwood, 993.
Bellows for ore-crushers, Krom, 1058.
Fans for supplying fuel to furnaces, Butcher, 1257.
Compressing air to work blast engines, Johnston, 1332.
Fan blower for portable forges, &c., Johnson (*Baxter*), 1677.
Exhaust fans for ventilating buildings, Ashton, 2054.
Portable rotatory or fan blowers, Bennett, 2086.
Fan apparatus for use in making sulphates, Robinson, 2145.
Supplying hot-blast to furnaces, Lake (*Essex*), 2259.
Applying mammals, &c. for raising beer, &c., Murphy, 2267.
Double-action bellows for carburetters, Cooper, 2404.
Combined blower, steam-engine and pump, Mackenzie, 2428.
Self-acting rotary ventilating fan, Molony, 2457.
Arranging steam blowing-engines, Bernays, 2674.
Fans for use in screening corn and seeds, Sainty, 2987.
Rotary blower, Sudlow, 2962.
Fans and blow pipes for fire-boxes, Waller, 3017.
Bellows and blast-engines, Gedge (*Soriaul*), 3077.
Rotary fans for exhausting or blowing, Morison, 3134.
Portable fans for exhausting or blowing, Nelson, 3135.
For smiths' or forge fires, Nelson, 3135.
Steam jet revivifying blowers for gas works, Körting, 3469.
Jet apparatus or blower for furnaces, &c., Körting, 3507.
Propelling or driving, Monckton, 3509.
For preparing fibres, Morgan-Brown (*Mennig & Mennig*), 3534.
Producing currents of air in furnaces, Johnson, 3545.
Centrifugal pump or fan, Paget (*Nagel & Kaemp*), 3719.
Or centrifugal machine, Rammell, 3913.
Forcing currents of air or gas for blast engines, Dodge, 3829.
For ventilating, blowing fog horns & furnaces, Richardson, 3866.
Blast fans for portable forges, Rollins (*Kellogg*), 4136.
Driving fans of portable forges, Rollins (*Kellogg*), 4136.
Driving fan blowers, Simpson (*Simpson*), 4145.
Compound or difference blowing engine, Russell, 4177.
Arranging fans for smoke consumers, Gedge (*Dubois*), 4301.

**Boat-building.** *See* "Shipbuilding."

**Boats (lowering, &c.).** *See* "Ships' boats."

**Boats (propelling).** *See* "Propelling ships."

**Bobbin net and twist lace.** *See* "Lace."

**Bobbins, spools and reels:**
Hand and machine sewing, Becker, 9.
Constructing warp, Condit (*Chapin*), 316.
Sewing-machine reels, Griffiths, 602.
Adjusting, to spindles, Booth (*Draper & Draper*), 1835.
Spools for sewing-machines, Becker, 2066.
Arranging bobbins and flyers, Combe, 2348.
For twist lace machines, Booth, 2859.
Affixing metal rings to bobbin flanges, Jackson, 2885.
Weavers' or warpers' spools, Haseltine (*Bryant & Nichols*), 3644.
Bobbin wheels or braids, and oiling same, Revell, 3862.
Bobbins for use in crimping wool, hair, &c., Thompson, 3986.
Applying friction breaks to, of throstles, Smith, 4207.

**Boilers (miscellaneous):**
Regulating water pressure in kitchen, Clark (*Cassmont*), 71.
Or caustic soda concentrators, Robinson, 224.
Constructing and heating domestic or open, Reed, 355.
For producing evaporation, Harrison, 383.
Tubular hot water for heating buildings, Dearman, 397.
For heating buildings, Newton (*Babbitt*), 429.
Condensing products emitted from, Leoni, 629.
For brewing in vacuum, Barlow (*Galland*), 676.
Saddle, for heating buildings, Hartley & Sugden, 971.
Furnaces for "coppers" & "stills," Milburn & Jackson, 1046.
For hot water and cooking purposes, Peacock, 1065.
Stills, Willoughby & others, 1126.
Asbestos packing for stills and, Cleghorn & Paterson, 1146.
For heating liquids, Gedge (*Fabas*), 1198.
Agitating water in, to prevent priming, &c., Macdonald, 1271.
Rotary, for making paper-pulp, Brown, 1574.
For hot-water apparatus, to save fuel, Weeks & Co., 1754.
Promoting combustion and saving fuel, Dennis, 1797.
For hot-water apparatus and to save fuel, Harlow, 1848.
For heating buildings, baths, &c., Mouly, 2268.
Heating rag boilers by air, Taylor, 2626.
Constructing and mounting saddle, Harlow, 2662.
For heating hot-houses, buildings, &c., Wagstaff, 2704.
For drying, heating and evaporating by steam, Roe, 2762.
For making paper pulp, Tiffany (*Meech*), 2956.
For heating water, greenhouses, &c., Heaps & Wheatley, 2964.
Tubular, for generating carbonic acid gas, Waller, 3017.
Domed crown-shaped vertical, Marriott, 3299.
For soap making, &c. in vacuo, Edwards (*Freeland*), 3746.
For combined alarum and heating apparatus, Sharp, 4061.
Arranging rotary for paper-making, Roeckner, 4117.
Consuming smoke in, Gedge (*Dubois*), 4301.

**Boilers (steam-engine).** *See* "Steam-boilers."

**Boiling point (determining).** *See* "Ebullioscopes."

**Bolsters and footsteps.** *See* "Bearings."

**Bolsters and pillows.** *See* "Upholstery."

**Bolting flour.** *See* "Sifting."

**Bolts:**
Making and locking nuts on, Stevens (*Reid*), 837.
For fastening railway rails or chairs, Seaton, 886.
Dies for making, Marsden, 1437.
Constructing "olivers" for forging screw, Archer, 1757.
Rolling bars for bolt blanks, Scattergood & Wilkes, 1827.
Making and locking screw, Neuhaus (*Liebing*), 1875.
For fastening rails or chairs, Seaton, 2010.
Threading, and oiling dies, Johnson (*Sellers*), 2489.
Heading, with brass, copper, &c., Stokes & Stokes, 2866.
Bolt and nut lock; slotting screw, Browne (*Guyer*), 2891.
Hydraulic bolt-making machine, Brown, 2865.
Cutting threads on, Conradi (*Sack*), 2979.
Cutting and finishing the ends of, Nelson, 3019.
Cranked pins as a substitute for, Yull, 3102.
Forging heads of, Horsfall & Greenwood, 3141.
Adjustable, for tramway track clearers, Craig, 3350.
Cutting screw threads on, Clark (*Frost*), 3630.
Cutting threads on, Gedge (*Schmitz*), 3803.
Sockets for, Dowland, 3963.
For tightening railway keys, Clark (*Jacquesson*), 4129.
Turning, screwing and finishing, Hartnell, 4276.
Universal chuck for screwing-machines, Lee, 4250.

**Bolts and door fasteners.** *See* "Locks."

**Bone, horn and ivory:**
Carving horn to imitate stag horns, Woodcock, 291.
Grinding bones and hoofs, Anduse, 1236.
Treating, for obtaining glue, fertilisers, &c., Hunter, 1611.
Substitute for ivory and bone, Conybeare & Naphegyi, 2166.
Imitating articles of, by "Plastique," Lake (*Bell*), 2280.
Treating bone boiling vapors, Johnson (*Silliman*), 2539.
Making artificial ivory, Cohen, 2780.
Table instrument for crushing bones, Weston, 3498.
Boiling, Edwards (*Freeland*), 3766.
Lathes for forming oval articles in, Phillips, 4082.
Treating, for obtaining fertilisers, Wise, 4176.
Imitating articles of, by "Plastique," Lake (*Bell*), 4343.
Extracting fatty matters from, Bentley, 4432.

**Bone black.** *See* "Charcoal."

**Bonnets and bonnet shapes.** *See* "Hats."

**Books; albums; portfolios; book-binding:**
Ornamenting covers of, Bell, 737.
Guide book or historic album for travellers, Not, 824.
Cutting and opening, Rutulini, 939.
Sewing-machine for, Tongue (*Thompson*), 1060.
Portable holder for carrying books, &c., Haymann, 1546.
Photographic albums, Hammond, 1766.

**Books; albums; portfolios; bookbinding—*cont.***

Adapting leaves of, for curl papers, Barker, 1717.
Book-binding, Straker, 1744.
Cutting boards for book-binders, Salmon & Nickols, 1755.
Safety pin fastener for holding leaves, Pulvermacher, 2172.
Fastenings for pocket-books, Hathaway, 2302.
Backs or leaf holders for pamphlets, &c., Mudge, 2341.
Leaf turners and portfolios, Mudge, 2341.
Felts for binding, Job, 2433.
Attaching samples in, for advertising, Smethurst, 2715.
Binders' rotary embossing press, Gowans, 2941.
Artificial skins for book-binding, Brown, 4459.

**Boots and shoes:**

Staples for making, Morgan-Brown (*Kenislon*), 5.
Paring, finishing, &c. soles and heels, Andrews, 59.
Enamelled tips for, Johnson (*Pollok*), 247.
Cutting button holes in, Clark (*Goodwin*), 364.
Making heels for, Stevens, 429.
Scraping or cleaning, Northcote, 445.
Lasting, Morgan-Brown (*Gardner & Pocock*), 450.
Hardening, &c. "sole leather," Murdoch (*Picard*), 454.
Turning down and fitting gussets, &c., Oldershaw, 472.
Stretching, Lake (*Harris*), 539.
Friction buckles for, Dethiou, 542.
Working revolving brushes for polishing, Egerton, 617.
Crimping and lasting, Keats & others, 620.
Crispin sewing-machine for, Keats & others, 620.
Waterproof mastic for coating, joining, &c., Bageau, 649.
Metal soles for protecting, Hughes (*Pawderford*), 941.
Cleaning, by brushes operated by a treadle, Ellis, 1021.
Using wire in sewing, Clark (*Bourdais*), 1046.
Screwing uppers to soles, Lake (*Mundell & Partridge*), 1233.
Finishing the edges of soles and heels, Southall, 1514.
Artificial or "vegetable" leather for, Muratori, 1524.
Eyelets for, Elsam (*Pultz & Walkley*), 1577.
Removing dirt from boots, shoes and goloshes, Spong, 1646.
Waterproofing leather for, Frankenburg, 1650.
Cutting and shaping laces, Gedge (*Rigaux*), 1678.
Soles of combined gutta-percha & metal borings, Baker, 1794.
Fixing or nailing heels to, Roullier, 2073.
Machine for sewing on soles, Jackson, 2081.
Buttons and button fasteners Bousfield (*Heaton*), 2194.
Making or casting tip nails, Mackley, 2281.
Lasting, sewing and moulding edges of, Mills (*Goodyear*), 2414.
Strengthening and waterproofing felt for, Job, 2433.
Adapting detachable soles as croquet slippers, Fox, 2467.
Detachable sole of wood, leather, &c. for, Fox, 2467.
Tack driving machine for lasting, Tongue (*Thompson*), 2469.
Affixing heels to, by means of screws, Lion, 2517.
Making waterproof, elastic, &c., Bonneville (*Nevière*), 2590.
Applying a thin steel plate between soles, Sandys, 2644.
Hardening, &c. "sole leather," Murdoch (*Picard*), 2686.
Machine for fancy stitching, Byron (*Merrill*), 2750.
Clips, slides or fastenings for, Jones, 2851.
Welting, bevelling soles, &c., Hughes (*Joyce*), 2870.
Folding leather for, Cheesbrough (*Platts & Walden*), 2928.
Forming heel-counters or stiffeners, Lake (*Côté*), 2974.
Uniting soles and uppers, Morgan-Brown (*Richardson*), 2994.
Trimming and burnishing soles of, Atwood (*Townsend*), 3013.
Rotary cutter for paring soles, &c., Atwood (*Townsend*), 3013.
Attaching buttons to, Cramp, 3146.
Convertible machine for cleaning, Townsend, 3456.
Adapting tin foil, &c. to, for waterproofing, Drury, 3574.
Moveable socks or cork insoles for, Drury, 3574.
Budds or sprigs for, Purdie, 3689.
Trimming and burnishing soles and heels, Lake (*Côté*), 3728.
Attaching buttons to, Dorman, 3748.
Waterproof inner sole or sock for, Achenbach (*Simis*), 3849.
Fastening elastic side springs to uppers of, France, 3875.
Machine for making, Lake (*Ballou & Copeland*), 3886.
Tabs or projections for buttoning, &c., Holland, 3931.
Machine for cleaning, Barthel (*Simon*), 3951.
Applying cork in making or lining slippers, Ritchie, 3977.
Rotary heels for, Jones, 4007.
Waterproofing socks or linings for, Wilkinson, 4026.
Material for uppers and soles of, Wilkinson, 4026.
Legging or gaiter boots, Plant, 4033.
Nails, budds and sprigs for, Purdie, 4067.
Buttons for, Mac Millan, 4071.
Lasting machine, Lake (*Ballou & Copeland*), 4078.
Reversible heels for, Jones & Box, 4219.
Lacing, Nash & Streeter, 4296.
Attaching heels to, Stewart, 4401.
Artificial skins for uppers of, Brown, 4459
Revolving brush machine for cleaning, Davis, 4460.
Fixing soles and heels to, by gutta-percha solution, Dick, 4482.

**Bo-peep alphabet.** *See* "Teaching."

**Borderings or trimmings.** *See* "Trimmings."

**Boring, drilling and rifling metals:**

Guns with two grooves, Lake (*Wiard*), 938.
Hand boring machine, Hutinet, 997.
Tool holders used in, Bonneville (*Bavillis*), 1281.

**Boring, drilling and rifling metals—*cont.***

Holes in tube or other plates or articles McKay, 1297.
Drilling and tapping mains under pressure, Schanzer, 1929.
Rifling small-arms, Punshon, 2589.
Combined machine for turning, &c. and, Atock, 2716.
Chucks for holding drills, Lake (*Armstrong*), 2860.
Rifling barrels of small-arms, Pieri, 3014.
Drilling and planing machine, Campbell & others, 3436.
Radial drilling machine, Lake (*Jobbins & Warth*), 3582.
Ratchet brace or drilling apparatus, Lake (*Evans*), 3918.
Radial drilling machines, Weild & Cochrane, 4055.
Drilling holes in nuts, Hartnell, 4276.
Tools and holders for drilling, Lingard, 4465.

**Boring and drilling rock or stone:**

Drills for, Ball, 206.
General construction and working of engines for, Dunn, 503.
Setting diamonds or carbon in mine drills, Terrey, 563.
Actuating tools in, Bousfield (*Ferroux*), 690.
Rotary engine for, Teulon, 705.
By percussive machinery, Beaumont, 1149.
Tunnels, Heaton, 1163.
By percussive machinery, Warsop & Hill, 1181.
Drill carriages or bogies, Brydon & Davidson, 1278.
Applying intense heat in, Werdermann, 1438.
Compressed air engine for, Manson, 1603.
Working percussive rock drills, Clark (*Chenot*), 1676.
Forming nibs or cutters of chilled metal, Macintosh, 1714.
Mechanism of & mode of supporting, Johnson (*Waring*), 1718.
Percussive engine for, Darlington, 1724.
Tunnels and subways under water, &c., Greathead, 1738.
Percussive engines for, Jordan, 1767.
General construction of rock drills, Sturgeon & White, 2065.
Rotating ring cutters for, Johnson (*Brown & others*), 2501.
Rotary drills for narrow workings, Tregay, 2728.
Machine or engine for, Haseltine (*Thurston*), 2741.
Percussive rock drills, Hosking & Blakewell, 2760.
Actuating tampon in rock drills, Butler (*Stockwell*), 2872.
Hardening substances for making cutters, Macintosh, 2945.
Percussive engines, Barlow (*Turrettini & Collados*), 3033.
Operating rotary drills for mining, &c., Walker, 3299.
Reciprocating engines for, Edwards, 3342.
Driving rotary drills direct from engine, Thomson, 3397.
Rotary steel implement for, Wirth (*Humboldt Mnfg. Co.*) 3490.
Tools for cutting or, Munro, 3836.
Slide valves for percussive drills, Brotherhood, 3883.
Machine for striking tools for, Lowry, 4131.
Working percussive rock drills, Beaumont, 4402.

**Boring and drilling wood:**

Working light revolving drills, Egerton, 617.
Blocks for road making, Light, 724.
Constructing and arranging machinery for, Ventress, 3820.
Curved holes in picking sticks for straps, Wright, 4114.
Holes in pieces for cask heads, Philippe & Pinet, 4243.

**Boring and sinking wells.** *See* "Wells."

**Boring for coal or other minerals:**

Core tubes of machines for, Belsham, 1183.

**Boring or sounding earth:**

Free faller system of, Wübbel (*Benninghaus*), 3386.

**Bottle and flask stoppers and capsules:**

Capsuling apparatus, Paterson, 45.
Elastic collar for bottle necks, Paterson, 45.
Internal aërated liquid, Vernon, 108.
Expanding, Thompson, 276.
Magnetic air-tight, Hickisson, 279.
Cutting and shaping corks for, Gilbee (*Boëthius*), 354.
Plugs and capsules for aërated liquids, Read, 406.
Or caps for filling, &c. aërated liquid bottles, Rose, 407.
Combined stopper and drinking vessel, Pochet, 553.
Mounting levers on clips or straps for, Thompson, 561.
Cutting and shaping corks for, Thornton, 577.
Wire caps for, Bonneville (*De Mestre*), 683.
Ball or sphere of rubber, Hunt (*Gledhill*), 700.
Central closing, Johnson (*Teyssonneau*), 760.
Nut and screw device, Gedge (*Baymé*), 808.
For two necked liquid bottles, Eastwood, 826.
Fixing capsules, Paterson, 830.
Cap or cover, Macintosh, 849.
Cutting corks, Martin, 1155.
Constructing, inserting and removing, Graham, 1259.
By lugs or projections and slots or recesses, Oldham, 1296.
Internal stopper, Breffit, 1359.
Internal stopper for aërated liquids, Wright, 1532.
External & internal, for aërated liquids, &c., Edwards, 1617.
Of colored glass to distinguish contents, Edwards, 1617.
Corking or stopping, Reynolds & Reynolds, 1723.
Capsuling apparatus, Schols, 1878.
Internal, for soda-water, beer, ale, &c., Clark (*Clark*), 1913.
Internal aërated and other liquid, Lamont, 1923.
Internal, for gaseous and other liquids, Cockburn, 1964.

**Bottle and flask stoppers and capsules—*cont.***

Capsule gas-holder attached to bottles, Marescot, 1909.
Preparing bottling wire, Lord, 2118.
For enclosing volatile liquids, Lilburne, 2224.
Internal, serving as discharge cocks, Coad, 2486.
Securing covers on bottles, Hill, 2915.
Expanding, with locking clips, &c., Thompson, 2961.
Hydraulic capsuling apparatus, Clark (*Bosquet*), 3100.
Cork stoppers for holding valves, Atkins, 3101.
Plug stopper replaceable when desired, Ryves, 3119.
Internal, for aërated waters, Hines, 3155.
External, for aërated and other liquids, Cherry & Cherry, 3219.
Wire coverings for, Bonneville (*De Mestre*), 3271.
Machine for corking, Bonneville (*De Mestre*), 3272.
For withdrawing liquids without removal, Michell, 3358.
Earthenware bottles and internal ball stoppers, Codd, 3448.
For feeding and other bottles, Stocker & Edwards, 3461.
Internal ball, for gaseous liquids, Fox, 3546.
Bottling and corking machine, Reynolds & Reynolds, 3566.
Hinged turn over, for gaseous liquids, Luntley, 3575.
Internal stopper, &c. for aërated liquids, Breffit, 3595.
Cap and screwed stopper for aërated liquids, Harcourt, 3666.
External and internal, for aërated liquids, Edwards, 3815.
With sliding wing pieces, Thompson, 3824.
Internal stud, for aërated waters, Froggatt & Ballard, 3855.
Internal floating, for aërated liquids, King, 4333.
Corking bottles of any height, Gedge (*Granjon*), 4424.

**Bottles; bottling and decanting:**

Cancelling labels of, Napier, 131.
For holding aërated or gaseous liquids, Rose, 497.
Screwing the exterior necks of earthenware, Rose, 497.
For aërated liquids, Hunt (*Gledhill*), 700.
With two necks, for aërated liquids and beer, Eastwood, 826.
Bottling aërated and other liquids, Tapp, 833.
Indicating removal of poison, Clarke, 1034.
Producing outside screw on necks, Rose & Brown, 1253.
Bottling and preserving ale, porter, &c., Bruce & Sykes, 1318.
Emptying device for aërated liquids, Breffit, 1359.
Bottling aërated and other liquids, Edwards, 1617.
Bottling beer, sauces, spirits, &c., Reynolds & Reynolds, 1723.
Drawing off liquids from, Herbert (*Wilbur*), 1790.
Packing and material for packing, Ivimy (*Long*), 1897.
Tool for forming rings or grooves in necks of, Lamont, 1923.
Internal stoppered, and filling same, Cockburn, 1964.
Portable bottle holder for pouring out wine, Mappin, 2151.
Forming screw threads on earthenware, Buchan, 2180.
For holding volatile liquids, Lilburne, 2224.
Combined bottle and syringe, Haseltine (*Walsh*), 2288.
Making green or black glass, Percival, 2345.
Stopper serving as a discharge cock, Coad, 2486.
Tap or valve for decanting aërated beverages, Elias, 2577.
Fluted paper packing for wine and other, Ivimy (*Long*), 2600.
Tap or valve for decanting aërated liquids, Goddard, 3011.
Filling demijohns and, Clark (*Sherwood*), 3097.
Tubes and valves for discharging and filling, Atkins, 3101.
Crates for holding and carrying, Brett & Williams, 3115.
Plug stopper for pouring out desired quantity, Ryves, 3119.
Washing and filling with aërated waters, Hines, 3155.
For aërated and other liquids, Cherry & Cherry, 3219.
Stoppers for withdrawing liquids from, Michell, 3358.
Forming earthenware, Murray & Crighton, 3422.
Earthenware, for aërated liquids, Codd, 3448.
Infants' feeding and other, Stocker & Edwards, 3461.
Labelling beer, wine and other, Martin, 3522.
Bottling and corking machine, Reynolds & Reynolds, 3566.
With recessed necks, for gaseous liquids, Luntley, 3575.
Emptying device for aërated liquid, Breffit, 3595.
With a retaining chamber for stopper, Edwards, 3815.
With a retaining chamber for stopper, Sutcliffe, 3972.
Applying thermometer to infants' and invalids', Stuart, 3998.
Drawing off wine, beer, &c. from casks into, Shanks, 4127.
Bottling ale, porter, &c. without frothing, Bruce, 4190.
Bottling still liquids, Ross, 4415.
Artificial skins for labels and covers of, Brown, 4459.

**Bouquet holders:**

Arranging table fountains as, Clark (*Wenck & Briesen*), 2690.

**Bowling-greens (watering).** *See* "Watering."

**Bowls:**

Cutting out hollow wooden, Johnson (*Goulas & Co.*), 3893.

**Boxes and cases:**

Rivetting the corners, joints or seams of, Mohr, 152.
Safety screws for, Loewensohn, 162.
For holding pens, buttons, needles, &c., Leonardt & Gilbert, 434.
Fire and burglar proof boxes and locks for, Goater, 552.
Tell-tale money box, Bradley, 583.
Multiple tool for prising open, Baille, 603.
Invisible springs for snuff-box hinges, Zalkind, 742.
Fastenings for packing cases, Coles, 753.
Bending and jointing bodies of metallic, James, 894.
Cardboard, for matches and haberdashery, Merlin, 905.
For exhibiting advertisements, &c., Wood, 960.

**Boxes and cases—*cont.***

For holding sardines, Lebacq, 965.
Fare collecting box for tram-cars, &c., Kaye & Kaye, 1005.
Flower and plant case for windows, &c., Raggett, 1060.
Of ligneous tissues, Murrow, 1063.
For storing and conveying eggs, Harte, 1309.
For transporting coal in trucks and carts, Napier, 1313.
Fastenings for deed, travelling and other, Hookham, 1337.
Ornamenting fancy, Bluemel, 1397.
Compound fabric or lining for, Rowan & Reid, 1507.
Cases for displaying jewellery, &c., Holtermann, 1697.
Moulding of paper-pulp, Mesick (*Wheeler & Jerome*), 1701.
Cutting, &c. boards for fancy & other, Salmon & Nickols, 1753.
Combined bedstead, bedding, table, &c., and box, Ritchie, 1906.
Despatch cases, Watson, 1907.
Making paper and pasteboard, of all shapes, Mills (*Hagl*), 1951.
Secret or invisible means of locking, Faddy, 1974.
Compound material for and mode of making, Brannon, 2027.
Making metallic, cardboard and other, James, 2072.
Spring hinge for grease and other, Wood, 2123.
Compositions or "Plastique" for making, Lake (*Bell*), 2254.
Convertible box, table, bedstead, &c. for tents, Ritchie, 2273.
Combined bedstead or cot and trunk or box, Turner, 2464.
Arranging money boxes in turnstiles, Lowry, 2515.
Making sheet metal cases or, Wagstaff, 2573.
Match, vesuvian and other, Stearns (*Gouchot*), 2819.
For holding & sampling pens, &c, Leonardt & Hewitt, 2823.
Nickelising handles, &c. of coal boxes, Underwood, 2963.
Nickelising handles, &c. of coal boxes, Underwood, 3136.
Strengthening bodies of coal boxes, &c., Underwood, 3136.
Adapting elastic bands to drapers' and other, McIlvride, 3173.
Metal boxes for containing sardines, &c., Lebacq, 3194.
Using sheet metal in making, Hirschmann (*Philipp*), 3200.
Dry earth box for earth closets, Green, 3413.
Nailing machine, Lake (*Foster & Culver*), 3662.
Sheet metal sliding match, Bennett, 3664.
For collecting money in tram-cars, theatres, &c., Hall, 3669.
For stowage & transport of gunpowder, Macklin & Moore, 3733.
For matches, needles, pins, &c., Brough, 3742.
For packing and distributing flour for use, Amos, 3846.
Cutting out wooden flower, Johnson (*Goulas & Co.*), 3893.
Hopper with lock for fare, &c. collecting boxes, Kaye, 4113.
Strengthening cash and deed boxes, Evans, 4260.
Cases for packing butter, &c., Allcard (*Dinant*), 4307.
Compositions or "Plastique" for making, Lake (*Bell*), 4363.

**Box-irons.** *See* "Ironing."

**Bracelets.** *See* "Jewellery."

**Braces or suspenders:**

Friction buckles for, Dethiou, 542.
Fastenings for, Hathawny, 2302.
Forming lever buckles for, Fisher, 2595.
Making, with a single central back strap, &c., Fromage, 2878.
Making and adapting safety pins to, Snow (*Gresly*), 2834.
Modes of arranging straps & buckles for, Wattles, 4154.

**Brackets:**

Material for brackettings, Brannon, 1246.
Compound material for and mode of making, Brannon, 2027.
Constructing concrete, Payne, 2786.
For fitting eaves-gutters to buildings, Lambert, 2963.

**Braiders for sewing-machines.** *See* "Sewing."

**Braiding-machines:**

Producing "oval braids" and fringes, Turner, 1187.
Making "Diamond velvet" braid, Büsche, 1963.
Circular, for braiding Venetian cords, &c., James, 4261.
For making fuses, "gaskin," and covering wires, James, 4261.

**Branding corks.** *See* "Cork."

**Bran-dusters.** *See* "Grinding corn."

**Brattice canvas.** *See* "Mining."

**Bread and biscuits:**

Heating baking ovens, Lewis & Wood, 180.
Furnaces for baking, Dearman, 397.
Burning gaseous fuel in heating ovens, Fearnley, 1423.
Self-raising flour, Johnson (*Eastwick*), 1846.
Combined graduated scoop and sifter, Haseltine (*Baker*), 2289.
Of a mixture of wheat and malt flour, Pooley, 2387.
Using endless wire ropes in travelling ovens, Parker, 2771.
Compound for making, in lieu of butter or lard, Reid, 3016.
From grain not converted into flour, Sézille, 3309.
Machine for making; leavening stove and oven, De Souza, 3706.
Cutting or slicing, Alexander (*Ménier*), 3814.

**Breaking & scutching flax.** *See* "Spinning (batting)."

**Breaking lump sugar.** *See* "Sugar."

**Breaking stone.** *See* "Stone."

**Breaks for machinery:**

Mine and hoist cages, Hughes (*Libotte*), 157.
Nail cutting machines, Wormald, 337.
Raising and lowering apparatus, Johnson (*Hart*), 358.
Constructing and actuating, Stevens, 371.
Raising and lowering apparatus, Smith, 453.
Stopping machinery in squeezing or extracting, Hall, 468.
And self-holding clutches for cranes, &c., Napier & Napier, 580.
Knitting machines, Cotton, 713.
Book sewing-machines, Tongue (*Thompson*), 1000.
Boot screwing machines, &c., Lake (*Mundell & Partridge*), 1233.
For pulley blocks, Crowley, 1483.
Rope stopper or check for blocks, Cutts & Dean, 1506.
Hot-air engines, Gottheil (*Berlin-Anhalt Machine Co.*), 1565.
For arresting atmospheric hammers, Clark (*Chenot*), 1676.
For regulating the lowering of saw frames, Cox 1696.
Self-acting friction, for printing machines, Nicholls, 2005.
Used in making clay retorts, &c., Cliff, 2034.
Pawl contrivance for pulleys, Williams, 2133.
For thread polishing machines, Weild, 2226.
Automatic, for cranes, winches, lifts, &c., Bourgougnon, 2292.
Mine and hoist cages, Hughes (*Libotte*), 2435.
For cranes, travellers, &c., Labett, 2521.
For sewing-machines, Pierce & Hutton, 2871.
For self-acting lever or motive-power machines, White, 2892.
For domestic fire-escapes, Flood, 2943.
Pawl or retaining clip for pulleys, &c., Kneebone & Gay, 2963.
Stoppers for cables and towing hawsers, Bullivant, 3054.
Toothed sliding clutch for reapers and mowers, Yull, 3102.
For use in grinding and surfacing, Gardner (*Bollmann*), 3126.
For sewing and other machine motors, Smith (*Proctor*), 3151.
For coal tipping chutes, Lake (*Upsom*), 3198.
Making blocks for or friction surfaces of, Bellamy, 3223.
Automatic, for heald knitting machines, Carr, 3313.
Pit cages, Taplay, 3500.
For electro-magnetic engines, Monckton, 3509.
Speed regulators adaptable as, Mégy & others, 3536.
For winches and hoists, Clark (*Lartigue*), 3771.
For differential and other pulleys, Roberts, 3775.
Clutch box for chaff cutters, &c., Wilson & Battersby, 3798.
Spring, for centrifugal machines, Fletcher, 3844.
Spring stop for printing cylinder, Davis & Parsons, 3887.
Saw frames, &c., Taffinder & others, 3971.
For milling machines, Kilburn & Gooder, 3980.
For mine, lift and hoist cages, Davis, 4042.
Friction, for spindles or tubes of throstles, Smith, 4207.
For raising and lowering apparatus, Hedley, 4252.
Friction blocks for pulleys, Wethered, 4446.

**Breaks for railways, tram-cars and road-carriages:**

By blocks pressing on the rails, Green & Price, 29.
Pneumatic railway, Steel & McInnes, 74.
Electric railway, Wilson, 75.
Connecting and working railway, Bramall & Groves, 83.
Actuating continuous railway, Ward, 158.
For tram-cars, Todd, 225.
Constructing and actuating, Stevens, 371.
For tram-cars, Cramp, 407.
Continuous railway friction roller, Elder, 481.
Steam breaks for locomotives and carriages, Adorno, 512.
By blocks pressing on the rails, Ellison & Dargue, 590.
Steam railway, Ellison & Dargue, 590.
Obviating the use of railway, Johnson (*Harmignies*), 658.
For tram-cars, Betteley, 686.
Rotary engines for operating continuous, Beckett, 778.
By shoes acting on upper part of wheels, Chapin & Manico, 814.
Pneumatic railway, Prall, 979.
Auxiliary railway, pressing on rails, Rhodes, 1029.
Continuous railway, Edwards, 1133.
For bicycles, Grout, 1163.
Pneumatic railway, Bonneville (*Marchand*), 1170.
Continuous steam railway, Broughton & Stephens, 1198.
Arranging levers, cranks, &c. to work railway, Edwards, 1511.
Exhaust apparatus for operating railway, Sanders, 1522.
Actuating railway, Tongue (*Chamberlain & Mandelbaum*), 1525.
Constructing and working pneumatic, Westinghouse, 1540.
For tram-cars, &c. without stopping the engine, Spill, 1586.
Steam-engine for operating railway, Herring, 1641.
Arranging and working continuous railway, Clark, 1666.
Utilising momentum for applying breaks, Lowry, 1746.
Running on single rails, Smith, 1849.
Chain & drum arrangement on axles of cars, &c., Brown, 1891.
Continuous railway, and operating same, Clark, 1905.
Attaching break rods to axle-boxes, Dobson, 1956.
Continuous railway, available as couplings, Edwards, 2098.
Actuating continuous railway, Clark, 2120.
Actuating railway, by the buffers, Miller, 2129.
For wheel carriages, Roberts, 2182.
Constructing, applying and operating continuous, Scott, 2290.
Hydraulic continuous and working same, Clark, 2293.
Self-acting vehicle, Schallehn (*Brüh & Böhringer*), 2305.
Connecting and working continuous railway, Groves, 2354.
Pneumatic apparatus for working continuous, Harding, 2381.
Applying break power to road carriages, Lewis, 2401.
By plates pressing inner side of rails, Labett, 2521.
Arranging, inside broughams, &c., Reilly, 2586.

**Breaks for railways, &c.—*cont.***

Operating electric railway, Winter, 2637.
By shoes pressing on the rails, Hunt (*Le Belleguic*), 2643.
Friction drums for tram-cars, Betteley & Sharer, 2765.
For carts, &c. operated by the horse, Houghton, 2838.
For carts, carriages, &c. operated by the horse, Ménard, 2906.
Break shoes for railway, Smith, 2950.
Device for applying air, when train separates, Smith, 2950.
Exhaust apparatus, &c. for operating air railway, Smith, 2950.
Continuous railway, Morgan-Brown (*Chamberlain*), 3110.
Employing motion of vehicles in applying, Banks, 3181.
Making blocks for or friction surfaces of, Bellamy, 3223.
Automatic railway, Abel (*Klunzinger*), 3293.
Actuating railway, by fluid pressure, Barker, 3334.
Continuous railway, blocks arranged in pairs, Walker, 3445.
Continuous railway, automatic or otherwise, Chadwick, 3475.
Break-shoe-Gianoli, Morgan-Brown (*Gianoli & others*), 3482.
Operating railway, automatically, Salomons, 3515.
Screw and nut device for stopping trains, Guyot & Ralu, 3606.
Mounting, arranging and working break blocks, Edwards, 3626.
Ratchet break apparatus for inclines, Edwards, 3626.
Grapnel apparatus for railway trains, Brown, 3693.
Chain drag apparatus for arresting trains, Footner, 3701.
Reactionary spring break, Simpson, 3767.
Automatic, for carriages when uncoupled, Chappell, 3871.
Continuous railway, Clarke, 4014.
Combined propeller and break, Prichard & Jackson, 4165.
For tramway carriages, &c., Kirkwood & others, 4410.
For locomotive steam-engines, Kitson & Batchelor, 4411.

**Breakwaters; foreshores; sea-walls:**

Material for foreshores, river facings, &c., Brannon, 1246.
Mastic for pointing, backing or filling up, Rae, 1674.
Compound material for and constructing, Brannon, 2128.
Constructing columns for erecting, Johnson (*Hill*), 2398.
Pontoons for lifting, &c. material in building, Darley, 2782.
Mastic of asphalte for sea-walls, Skinner, 3217.
Steadying floating, Hodgson, 3734.

**Breast pins.** *See* "Jewellery."

**Breech-loading fire-arms.** *See* "Fire-arms."

**Breeding oysters.** *See* "Oysters."

**Brewing; treating beer:**

Filter or strainer for, Deny, 16.
Kiln or chamber for drying grains, Perry, 55.
Ozonising ale and beer, Monckton, 265.
Condensing beer, ale and porter, Lockwood, 289.
Cooling worts in, Harrison, 383.
Obtaining further extract from grains or malt, Garton, 508.
Complete system of, to save fuel, Barlow (*Galland*), 678.
Vessel to obtain infusions or decoctions, Hutchinson, 756.
Cooling worts in, Harrison, 1244.
Destroying and preventing acidity in beer, Southby, 1361.
Feeding liquors to fermenting vessels, &c., Pye, 1488.
Cooling worts, Joyce (*Selten*), 1523.
Vessels for containing fresh brewed beer, Nicoll, 1626.
Cooling & drawing beer for drinking, Clark (*Ridgway*), 1694.
Concentrating beer in solid form, Clark (*Tröster*), 1705.
Attemperators and glass vats for, Hartley, 1768.
Cooling worts in, Henderson & Ritchie, 1801.
Liquid or solution for preserving ale, Clark, 1837.
Cooling beer in drawing for drinking, Coles, 1848.
Centrifugal filtering machine, Johnson (*De Loynes*), 1916.
A "pneumatic system" of malting, Barlow, (*Galland*), 1988.
Preserving hops for, Johnson (*Breithaupt*), 2083.
Preventing beer in barrels from turning, Monckton, 2581.
Furnaces for brewing pans, Blazicek & Bauer, 2973.
Cooling worts in, Bycroft, 2991.
Erecting glass lined attemperators and vats, Hartley, 3084.
Chemically decorticating grain for use in, Sézille, 3309.
Preparing malt for, Wirth (*Stenger & Walther*), 3524.
Kiln or chamber for drying grains, Perry, 3598.
Consuming smoke in furnaces, &c., Jowett & Hunter, 3739.
Evaporating chamber or stove, Perry, 3827.
Solid "dextrin-maltose" for, O'Sullivan & Valentin, 3909.
Making sugar for, Garton, 3950.
Treating maize for, Laubarede (*Baud & Saulxures*), 3962.
Fining ale, porter, &c., Bruce, 4180.
Preserving fermented liquors, Read, 4312.
Method of heating, Comte de Beaurepaire de Louvagny, 4450.

**Bricks and building blocks:**

Combining steam-boilers with kilns, Dudgeon, 20.
Asphaltum concrete, Van Camp & Clark, 33.
Moulding and pressing, Easton & Tattersall, 248.
Drying, by heated air, Clark (*Ligny*), 323.
Forming & combining, in reducing furnaces, Kyte (*Wilson*), 339.
Compressing and moulding, Hahn, 360.
Rotating mould boxes, Bock & Strong, 424.
Asbestos slip for making, Hyatt, 478.
Process and composition for making, Deléon, 525.
Cutting or forming, Topping & Gregory, 621.

**Bricks and building blocks—*cont.***

Cutting, lifting and stacking, Pinfold, 748.
Machine for making, Steven, 748.
Illuminating, set with glass, Hyatt, 783.
Water containing bricks, Hyatt, 783.
Portable machine for making, Lürmann, 956.
Heating kilns, Jensen (*Brickson & Maardt*), 1072.
Moulding, making and lubricating moulds for, Mayer, 1082.
Pressing in moulds, Liddell, 1161.
Self-acting pressing machine, Gill, 1238.
Materials for ("Lignolithite," &c.), Brannon, 1346.
Moulding, of common clay, shale, fire clay, &c., Healey, 1315.
Compound or material for fire-bricks or blocks, Horne, 1425.
Glazing and waterproofing, Atkinson, 1441.
Decorating building blocks, Brannon, 1472.
Of molten slag or scoria, Moore, 1496.
Utilising "chrome waste," &c. for making, McAdam, 1529.
Flame kilns or ovens for baking or burning, Bull, 1538.
With projections and recesses, Abel (*Jaehne*), 1610.
Shaping, for floors, roofs and walking surfaces, Hyatt, 1715.
Artificial stone, Wise (*Preusser*), 1763.
Moulding and pressing, Harcourt, 1961.
Material for and making building-blocks, Brannon, 2128.
Self-acting machine for making, Wirth (*Boudriot*), 2201.
Pressing or moulding, Durand & Drouot, 2231.
Making, from residue of alum works, Beatson, 2272.
Dusting or coating powder for fire-bricks, Holland, 2470.
Fire-bricks of "Brynamman" clay, Holland, 2470.
Making colored, glazed and ornamental, Holland, 2470.
Utilising refuse earthenware for making, Holland, 2470.
Cement or plastic for and moulding blocks, O'Friel, 2500.
Crushing, "rending," moulding & compressing, Clubley, 2534.
Using grooved, for forming ventilating flues, &c., Ball, 2583.
Applying "pug mills" to pressing machines, Fawcett, 2827.
Gauge feed hopper; moulding and pressing, Fawcett, 2827.
For angles of walls, Billings, 3117.
Sheets and plates for holding colored bricks, Hyatt, 3171.
Mastic of asphalte for building blocks, Skinner, 3217.
Machine for making, Whitehead, 3229.
Regulating pressure in moulding presses, Griffiths, 3233.
Casting, from slag run direct from furnace, Paterson, 3325.
Pressing and moulding, Liddell, 3492.
Forming and heating drying floors, Batley & Watkinson, 3537.
Moulding and pressing machine, Kennedy, 3578.
Pug mill, moulding wheel and brick press, Thairlwall, 3624.
Pug mill; pallet and slop moulding fire & facing, Bawden, 3627.
Refractory material for making, Horne, 3641.
Furnaces, stoves or kilns for burning, Jowett & Hunter, 3739.
Moulding and compressing, Whittaker, 3743.
From sewage sludge, &c., Vallé, 3784.
Feeding and discharging press moulds, Brunt & White, 3865.
Press for making bricks of concrete, shale, &c., Wood, 3925.
Fuel-saving kiln for burning, Williams, 3956.
Kilns for burning, Wedekind & others, 4138.
Material for ("Carbonite"), Smith & Paterson, 4194.
Hardening artificial stone, Sellars, 4195.

**Bridges:**

Forging metal blanks used for, Ashbury, 898.
Composition for preserving, &c., Muratori, 931.
Locking navigation bridges on railways, Rapier, 1064.
Constructing bridge floors, Brannon, 1246.
Floating bridge for ferries, Obach, 1343.
Girders and other bridging members, Brannon, 1372.
Rivetting apparatus used in constructing, Purdie, 1427.
Hand dredgers for excavating foundations of, Bull, 1635.
Cutting metal plates for, Dawes & Holt, 1726.
Constructing foundations of, in open water, Hunter, 2097.
Girders and other bridging members, Brannon, 2128.
Materials for & constructing viaducts & arches, Brannon, 2128.
Rolling, or platform for shallow rivers, Muirhead, 2136.
Constructing columns for erecting, Johnson (*Hill*), 2398.
Pontoons for lifting, &c. material in building, Darley, 2782.
Bridging entrances to docks, rivers, &c., Kinipple, 3373.
Removing sand, &c. for fixing piles for, Bazin, 3694.
Steadying bridge pontoons, Hodgson, 3784.
Seamless hollow metal work for, Newton (*Brooks*), 4244.

**Bridling cables to anchors.** *See* "Anchors."

**Brine pans.** *See* "Heating and evaporating."

**British gum.** *See* "Gum."

**British wine.** *See* "Wine."

**Broad-cast sowers.** *See* "Sowing."

**Bronzing or powdering.** *See* "Gilding."

**Brooches.** *See* "Jewellery."

**Brooms.** *See* "Brushes."

**Bruising oats.** *See* "Grinding corn."

**Brushes and brooms:**

Supplying powder to tooth and other, Kennedy, 65.
Mounting spindles for revolving, Egerton, 617.
For cleaning steam-boilers, Johnson (*Sommer*), 1069.
Paint, varnish and other similar, Culmer, 1138.
For cleaning steam-boiler tubes, Fryer, 1774.
Securing handles to brooms, Clissold, 2265.
Washing, polishing, and paint, Bonneville (*Nesière*), 2391.
Mounting, &c. in hair-brushing machines, Neves, 2396.
Tube brush, for cleaning boiler tubes, Knott, 2540.
Self-supplying mucilage, Clark (*Hussey*), 3449.
Backs and handles of, Chadwick & Condron, 3776.
Applying electricity to, Pulvermacher, 3937.
For boot cleaning machines, Barthel (*Simon*), 3961.
Floating, &c. to prevent boiler incrustation, Nimmo, 4018.
Spiral cane, for cleaning tubes, flues, &c., Nash, 4123.
Fastening wire bristles, &c. in, Nash, 4123.
Mounting, for cleaning tin plates, &c., Thomas & others, 4221.
Feather dusting brushes, Lake (*Griswold*), 4312.

**Brushing-boots or shields for horses.** *See* "Harness."

**Buckets, pails and tubs:**

Rivetting the ears on, Mohr, 152.
Deodorising and filtering chamber pails, Synge, 254.
Bottoming sheet metal, Lake (*Shepard & Sumner*), 271.
Cutting out iron water, Radcliffe, 1553.
India-rubber sheets for lining, Thomson & Watson, 2012.
Wooden water buckets and tubs, Johnson (*Goulee & Co.*), 3[illegible].

**Buckles and clasps:**

Without prongs ("Friction buckle"), Dethion, 542.
Clasping pin for articles of dress, &c., Armstrong, 606.
For straps or bands, Sterne, 1965.
Compositions or "Plastique" for making, Lake (*Bell*), 2[illegible].
Forming lever buckles for belts and braces, Fisher, 2[illegible].
For stays and corsets, Brewer (*McLean*), 2629.
Clasps for dress suspenders, Avery, 2854.
Slip ("Owen's slip buckle"), Clayton (*Owen*), 2[illegible].
For galvanic chains, bands, &c., Pulvermacher, 3937.
Compositions or "Plastique" for making, Lake (*Bell*), 4[illegible].

**Buddles used in washing ores.** *See* "Washing."

**Budds, spriggs and tip nails.** *See* "Nails."

**Buffers for railways.** *See* "Railway buffers."

**Building blocks.** *See* "Bricks."

**Building hoists or lifts.** *See* "Hoists."

**Building ricks or mows.** *See* "Stacking."

**Buildings:**

Decorating walls with painted glass, Sutherland, 31.
Apparatus for constructing concrete, Corpe, 141.
Friction buckles for building ropes, Dethion, 542.
Fireproofing, Taylor, 751.
Constructing and fireproofing, Hyatt, 783.
Scaffolding, &c. for erecting concrete, Broughton, 819.
Fire and burglar proof, Dunlop, 820.
Fireproofing, Salomons, 910.
Composition for fireproofing, &c., Muratori, 931.
Sleeping berths for hospitals, workhouses, &c., Dewar, 1[illegible].
Material for fittings and fixtures of, Brannon, 1246.
Materials for and mode of constructing, Brannon, 1346.
Of arched ribs of railway rails, Abel (*Poutilof*), 1277.
Fireproofing, Taylor & others, 1331.
Girders and joistings for, Brannon, 1372.
Fire-proof storehouses for furniture, &c., Knightley, 1[illegible].
Pictoliths or stone pictures for decorating, Brannon, 1[illegible].
Impermeable pavement for coach houses, Morison, 1[illegible].
Linings for iron and other houses, Rowan & Reid, 1[illegible].
Constructing and fireproofing, Collcutt, 1549.
Constructing, to be easily taken down, Abel (*Jaehne*), 1[illegible].
Mastic for basement floors, foundations, &c., Rae, 1674.
Constructing and fire-proofing, Hyatt, 1715.
Constructing fire-proof warehouses, &c., Wright, 1[illegible].
Decorating interior and exterior of, Hawksworth, 1[illegible].
Decorating interior, by transfer printing, Fawcett, 1[illegible].
Material for and mode of constructing, Brannon, 2[illegible].
Framings, trussings, webbings, &c., for, Brannon, 2[illegible].
Material for and constructing fire-proof, Brannon, 2[illegible].
Fire detector and indicator for, Lewthwaite, 2[illegible].
Constructing roofs and other parts of, Lascelles, 2[illegible].
Blocks for stair treads or steps, Cotter, 2[illegible].
Columns for erecting warehouses, Johnson (*Hill*), 2[illegible].
Constructing fireproof, Brereton, 2[illegible].
Advertising block for stairs, Cotter, 2545.
Making and fire-proofing rods, bars, joists, &c., Hyatt, 2[illegible].
Constructing, for better heating and ventilating, Ball, 2[illegible].
Applying japanned metals to stair-cases, Hughes, 2[illegible].
Applying japanned metals to ornamenting, Hughes, 2[illegible].
Decorating walls, doors, plaster, wood-work, &c., Magny, 2[illegible].

**Buildings—*cont.***

Store-houses for petroleum and spirits, Gittins, 2725.
Making concrete balconies, brackets, &c., Payne, 2786.
Eaves-gutters and water-courses for, Lambert, 2865.
Equilising pressure on dancing-hall floors, Miller, 2964.
Slip buckles or links for building, Clayton (*Ossen*), 3050.
Using glass in architectural embellishments, Hartley, 3084.
Domes, turrets, dormers, towers and spires, Hyatt, 3171.
Arches, arcades, verandahs and partitions, Hyatt, 3171.
Steps, stoops, area-covers, sills, treads and risers, Hyatt, 3171.
Mastic of asphalte for, Skinner, 3217.
Constructing iron houses, Elsdon & Ayres, 3497.
Constructing wooden portable, and spires, Plimpton, 3508.
Fastenings for coverings of wooden, Plimpton, 3508.
Pavement for coach houses, Morison, 3744.
Concrete building apparatus, Potter, 3945.
Apparatus for constructing concrete and other, Macleod, 3994.
Portable lattice work for builders, &c., Stevenson, 4220.
Shelter for covering pavements, Inghels, 4232.
Repairing scaffolding, Tongue (*Devrès*), 4361.
Vault coverings and lights, Newton (*Foley & others*), 4445.

**Buildings (extinguishing fire in).** *See* "Fire-engines."

**Buildings (heating and warming).** *See* "Heating."

**Buildings (ventilating).** *See* "Ventilating."

**Bullets and shot.** *See* "Shot."

**Bumbling wool.** *See* "Fibres."

**Bungs and corks.** *See* "Cork."

**Buoys:**

Fog signals and alarm bells for, Pattison, 249.
Chains for mooring harbour, Benson (*Rehbein & others*), 495.
Compound for constructing, Brannon, 2028.
For indicating the spot if vessels founder, Gosselin, 2678.
For saving gold, bank-notes, bills, &c., Gosselin, 2678.
For saving papers, money, &c. at sea, Count de Liancourt, 3599.
Steadying bell and signal, Hodgson, 3734.

**Burglar alarms.** *See* "Signals (miscellaneous)."

**Burial vaults.** *See* "Graves."

**Burners (gas and liquid).** *See* "Gas-burners."

**Burning bricks.** *See* "Bricks."

**Burning smoke.** *See* "Smoke."

**Burnishing photographs.** *See* "Photography."

**Burnishing soles and heels.** *See* "Boots."

**Burring & cleaning fibres.** *See* "Spinning (batting)."

**Bushes, bearings and steps.** *See* "Bearings."

**Busks.** *See* "Stays."

**Bustles.** *See* "Dresses."

**Butter:**

Artificial, from tallow, &c., Brewer (*Diderichsen*), 661.
Obtaining oleine from fat for artificial, Hipkins, 664.
Artificial, from fats, Hipkins, 684.
Clarifying or purifying rancid, Hipkins, 684.
Artificial ("Bearrine"), Clark (*Dordron & others*), 1049.
Substitute for ("Buttereine"), Haseltine (*Smith*), 1219.
Churns, Bradford, 1272.
Artificial, from fats, lard and oil, Rennick (*Tappan*), 1396.
Preserving, by means of cold, Dufrené (*Tellier*), 2770.
Non-conductor for butter-coolers, Peacock, 2833.
Substitute for, in cooking, making bread & pastry, Reid, 3010.
Cutting and ganging, Haseltine (*Richards*), 3022.
Churns, Bradford, 3537.
Cutting out wooden churns, Johnson (*Goulas & Co.*), 3893.
Cases for packing, for transport, Allcard (*Dinant*), 4507.

**Butter-coolers.** *See* "Butter."

**Buttereine.** *See* "Butter."

**Button-holes or other slits:**

Instrument for cutting, Clark (*Goodwin*), 364.
Sewing-machine for stitching, Cooke (*Cooke*), 708.
Sewing-machine for stitching, Vosper, 1184.
Button-hole sewing-machine, Atwood (*Townsend*), 3183.
Machine for stitching, Newton (*McCloskey & Folk*), 4128.
Punching out, in paper collars, Reuter, 4157.

**Buttons and similar dress fastenings:**

Sleeve-links, solitaires, &c., West & Spittle, 359.
Solitaires, studs, &c., Walton, 419.
Boxes or receptacles for holding, Leonardt & Gilbert, 434.
Clasp or clasping pin, Armstrong, 666.
Fastenings for studs, links, solitaires, &c., Kendrick, 746.
Studs, sleeve-links, &c., Bricknell, 841.
Hook or fastening, Clark (*Grut*), 875.
Fastening and protecting studs, buttons, &c., Bennett, 945.
Detaching ornaments from studs, solitaires, &c., Reading, 994.
With removeable heads, Willock, 1578.
Polishing, lining and finishing, Haseltine (*Isbell*), 1632.
Solitaires, sleeve-links and studs, Carter & Ashwin, 2121.
Safety pin fastener for securing, Pulvermacher, 2172.
And button-fasteners, Bousfield (*Heaton*), 2194.
Forcep for setting buttons, Bousfield (*Heaton*), 2194.
Compositions or "Plastique" for making, Lake (*Bell*), 2250.
Solitaires, sleeve-links and studs, Carter & Ashwin, 2261.
Fastener for glove buttons, &c., Jefferys, 2269.
Fastenings for sleeve-links and collar studs, Hathaway, 2303.
Making linen & other covered buttons, Empson & Palmer, 2337.
Solitaires, sleeve-links and studs, Kendrick, 2355.
Sleeve-links and solitaires, Brooks, 2443.
Solitaires and studs, Hill & Cheshire, 2444.
Polishing or surfacing ivory, bone and similar, Tylor, 2449.
Making linen and trowser, Cutler & Newman, 2503.
Solitaire buttons and shirt studs, Jefferys, 2596.
Solitaires and sleeve-links, Dowler & Smith, 2688.
Solitaires, sleeve links, studs, &c., Richards, 2788.
Ornamenting sleeve, Lustig, 2997.
Compound tool for making metallic, Harrison, 3083.
Button fastener and inserting implement, Cramp, 3146.
Studs, solitaires, &c., with detachable backs, Nicole, 3158.
Buttons and studs to be used without stitching, Keats, 3179.
Solitaires, studs and sleeve-links, Pendleton, 3221.
Sleeve-links, studs, solitaires, &c., Brown, 3382.
Fastenings for solitaires, sleeve-links, &c., Heilborn, 3383.
Solitaires, studs and sleeve-links, Pendleton, 3478.
Studs, &c. of "nickelised" iron, Monckton, 3509.
Studs for fastening shirt fronts, Naylor, 3568.
Using dried spent tan for, Murdoch (*Honnaij*), 3583.
Studs, solitaires, sleeve-links, &c., Brandon, 3584.
Solitaires, studs, buttons, &c., Rollason & Wood, 3600.
Solitaires, sleeve-links, studs, &c., Cutler, 3679.
Solitaires, sleeve-links and studs, Sutton, 3706.
Attaching buttons to articles of apparel, Dorman, 3748.
Crescent backs of studs, solitaires, &c., Jefferys, 3770.
Sleeve studs, solitaires, &c., Reading & Reading, 3936.
Button pole plates or electrodes, Pulvermacher, 3937.
Studs, solitaires, &c. and fastenings, Van Swyndregt, 4012.
Detachable fastenings for, Lake (*Young*), 4025.
Buttons, studs, solitaires and fasteners, Mac Millan, 4071.
Lathes for forming oval buttons, Phillips, 4082.
Studs and similar fastenings, Roberts, 4238.
Stud fastenings, Lewis & McIlvenna, 4302.
Compositions or "Plastique" for making, Lake (*Bell*), 4343.
Studs, buttons and sleeve-links, Clark (*Ulmann*), 4356.

## C.

**Cabinets for cigars.** *See* "Tobacco."

**Cabinets for stationery.** *See* "Furniture."

**Cables for telegraphs.** *See* "Telegraphs."

**Cables or ropes.** *See* "Ropes."

**Cabs.** *See* "Carriages."

**Cages for hoists.** *See* "Hoists."

**Caissons; coffer-dams:**

Material for and mode of constructing, Brannon, 1246.
Constructing wooden caissons, Westmacott, 1659.
Dams for sinking foundations under water, Hunter, 2097.
Compound material for and constructing, Brannon, 2128.
For raising ships out of the water, Scott, 2562.
For submarine tunnelling, &c., Hughes (*Wennmackers*), 2933.
For bridging entrances to docks, rivers, &c., Kinipple, 3573.
Pneumatic apparatus for ventilating, Richardson, 3866.

**Calcining or roasting ores.** *See* "Smelting."

**Calcium (chloride of).** *See* "Metallic salts."

**Calculating figures.** *See* "Teaching."

**Calendars or date indicators:**

Rotating, De La Rue & Shaw, 311.
Perpetual advertising almanac, Bardo, 3753.

**Calendering fabrics.** *See* "Finishing."

**Calico printing.** *See* "Printing fabrics."

**Calking ships.** *See* "Ship-building."

**Caloric engines.** *See* "Air and gas engines."

**Camp and field equipage:**
Air bed, Cotter, 1.
Combined portable cooking utensils, Dann (*Gervais*), 530.
Friction buckles for, Dethiou, 542.
Sleeping berths, Dewar, 1105.
Mechanical horse for transporting, Gedge (*Bret*), 1579.
Combined furniture, bedding and box, Ritchie, 1906.
Arranging hammocks as ambulance litters, Turner, 2484.
Converting hammock sacking into valises, Turner, 2484.
Combined cot, box, bag or clothing receptacle, Turner, 2484.
Hammocks, cots & bedsteads; ovens or cantoens, Turner, 2484.
Portable camp cooking stove, Tomkins, 2504.
Portable or pocket stove for warming food, &c., Lefèvre, 2580.
Flash sun-light telegraph for field purposes, Mance, 3310.

**Cams:**
For moving steam valves, Benson (*Cope & Maxwell*), 1036.
Casting and moulding, Hattersley & Hebden, 1093.
For copping rails, Brooks & others, 1502.
For sewing-machines, Kight & Mohrstadt, 1710.
For working Jacquard cylinders and dobbies, Bowker, 1999.
For actuating moulds in brick making, Fawcett, 2827.
For pentograph embroidery machines, Easton & others, 2958.
For leather rounding machines, Lake (*Osborne*), 3045.
Adjustable rake cams for reaping-machines, Yull, 3102.
Arranging, for compressing, bending, &c., McNabb, 3296.
For brick pressing machines, Kennedy, 3378.
For small coal, &c. compressing machinery, Kingsford, 3728.
For use in regulating steam-engines, Earnshaw & Holt, 3841.
Or oval eccentrics for rotary engines, Mills (*Teal*), 4035.
For distributing steam and varying engine cut-off, Péne, 4047.

**Canal boats.** *See* "Ship-building."

**Canals; locks:**
Gates, sluices or by-pass valves for locks, Stoney, 882.
Material for constructing, Brannon, 1246.
Working lock gates, Westmacott, 1642.
Constructing wooden lock gates, Westmacott, 1659.
Compound material for canals, Brannon, 2128.
Sluices or floodgates for, Stoney, 3103.

**Cancelling labels.** *See* "Labels."

**Candles; candlesticks; night-lights:**
Cap to prevent guttering, Fleming, 120.
Swing holders or carriers for, Derry, 135.
Incombustible asbestos wicks, Hynam, 615.
Perforated cup to prevent guttering, Fayol, 1475.
Night-lights, Payne & Freestone, 1541.
Moulds and casting taper ended, Field (*Wuenschmann*), 1632.
Applying "Zapotine" in making, Conybeare & Naphegyi, 2103.
Preparing "disinfecting candles," Wirth (*Reissig*), 2884.
Producing elaidic acid for, Morgan-Brown (*Bastie*), 3021.
Igniting, by electricity, Lake (*Lambrecht & Wippern*), 3351.
Holder and "save-all" for candlesticks, Fleming, 3374.
Combining match-boxes with candle-holders, Fleming, 3374.

**Cane juice.** *See* "Sugar."

**Canes.** *See* "Walking sticks."

**Canisters.** *See* "Tins."

**Cannons.** *See* "Fire-arms."

**Canocarpine.** *See* "Dyes."

**Cans:**
Soldering, Merriam, 370.
Making and closing provision, Johnson (*Toussonneau*), 760.
Opening knife or blade for, Clark (*Tuft*), 780.
Bending and jointing bodies of metallic, James, 894.
For supplying oil to lamp reservoirs, Rippingille, 920.
Protecting, containing explosive liquids, Hendrix, 1011.
Making and cutting out valve oil, Radcliffe, 1558.
Cutting or opening hermetically sealed, Hardcastle, 2778.
Constructing lubricating oil, Burtinshaw, 3202.
Opening preserved provision cases, Griffin, 3375.
Sectional milk, oyster and other, Brodhead, 4392.

**Cans (drinking).** *See* "Drinking vessels."

**Canteens.** *See* "Camp and field equipage."

**Caoutchouc.** *See* "India-rubber."

**Capes and coats.** *See* "Wearing-apparel."

**Caps and cap fronts.** *See* "Hats."

**Caps to prevent guttering.** *See* "Candles."

**Capstans.** *See* "Hoists."

**Capsuling bottles.** *See* "Bottle stoppers."

**Caramel.** *See* "Sugar."

**Carboazotine.** *See* "Explosive compounds."

**Carbolic acids.** *See* "Acids."

**Carbon.** *See* "Charcoal."

**Carbonate of lead.** *See* "Metallic salts."

**Carbonate of lime.** *See* "Lime."

**Carbonates (alkaline).** *See* "Alkalies."

**Carbonic acid gas.** *See* "Acids."

**Carbonic acid gas engines.** *See* "Air-engines."

**Carbonising or case-hardening.** *See* "Annealing."

**Carbonite.** *See* "Bricks and building-blocks."

**Carburetters; carburetting:**
Air and steam, Benson (*Morris and others*), 64.
Air, Vaughan (*Dubois*), 246.
Gas, Dewynter (*Lenoir*), 450.
Air, Richards, 567.
Hydrogen or "water gas," Richards, 567.
Hydrogen gas, Henry, 589.
Air, Yarrow, 598.
Air, Holland, 641.
Coal gas, Weston, 702.
Coal and other gases, Weston, 810.
Air, Hunter, 907.
Air, Holland, 935.
Air, Muir, 1288.
Gas, Lenoir, 1589.
Air, Clark (*Cayce*), 1851.
Air, Howes, 1944.
Air, Stacey & Lace, 1958.
Decomposed steam and coal gases, Lake (*Harkness*), 2102.
Air, Haseltine (*Brayton*), 2209.
Peat, &c. for gas-making and fuel, Clark (*Jenty*), 2270.
Air or gas, Cooper, 2404.
And super-carburetting air, Clark, 2571.
Coal gas, Aitken, 2587.
Air, Clayden, 2698.
Gases and aëriform fluids in general, Ramsden, 2930.
Hydrogen gas, Lake (*Browne*), 3058.
Air for gaseous fuel, Marchant, 3189.
Air, Marchant, 3190.
Air, Malam & Graves, 3240.
Air, Peacock & Bradley, 3243.
Gases evolved by the decomposition of water, Spice, 3362.
Water gas, Redwood, 3307.
Hydrogen, Robinson, 3346.
Air and gaseous bodies, Fogarty, 3792.
Steam, Marchant, 3343.
Air, Paris, 3905.
Air, Schussler, 4021.
Air and gas, Johnson (*Lockwood & Lockwood*), 4298.
Air in carbonising iron, Bonneville (*Eames*), 4346.
Water-gas, Spice, 4365.

**Cardboard.** *See* "Paper."

**Carding fibres.** *See* "Spinning (carding)."

**Cards:**
Burnishing, Lake (*Bass*), 1481.
For playing the game of "The puppet show," Covell, 1684.
Fastener or binder, Small & Cox, 2139.
Press for giving convex shape to, Brookes (*Farjon*), 2667.
Press for glazing or polishing, Cleary, 3541.

**Cargo (loading & unloading).** *See* "Ships' cargoes."

**Carpet-bags.** *See* "Bags."

**Carpets:**
Of paper pulp and sponge, Lake (*Kendall*), 701.
Utilising old, Smith (*Melville*), 1314.
Sewing-machine for stitching, Garland, 2043.
Machine for sewing, Garland & Gove, 4225.

**Carpets (felt).** *See* "Felt."

**Carpets (weaving).** *See* "Weaving (carpets)."

**Carriage axles.** *See* "Axles."

**Carriage breaks.** *See* "Breaks for railways."

**Carriage lamps.** *See* "Lamps."

**Carriage wheels.** *See* "Wheels for carriages."

**Carriages, carts and waggons (road):**

Loading and unloading sacks, Lewis & Lewis, 252.
Constructing and propelling by manual power, Dix, 582.
Fitted with endless portable rails, Dunlop, 657.
Locking drags, Shanks, 838.
Constructing and propelling by air, Scott-Moncrieff, 868.
Hook or fastening for coach furniture, Clark (*Grut*), 875.
Fireproofing and uniting wood for, Muratori, 931.
Tipping coal corves or waggons, Fowler, 943.
Panels of waterproof tissues, Murrow, 1063.
Apparatus for restraining horses, Clark (*Jouret*), 1110.
For transporting the Ménière balloon, Ménier, 1144.
Fitting seats to facilitate getting in and out, Pinnock, 1213.
Hansom cab windows, Powell, 1254.
Automatically unfolding and folding steps, Kendrick, 1262.
Elevating corn, hay, &c. on to, Mitchell, 1302.
Transporting and delivering coals, Napier, 1313.
Traction springs for, Abel (*Fehrmann*), 1326.
Propelled by the weight of rider, Hughes (*Gombert*), 1330.
Springs for, Clark (*Doremus*), 1410.
Dust-proof window-blind, Rich, 1456.
Constructing and propelling by air, Scott-Moncrieff, 1458.
Linings for carriages, carriage aprons, Rowan & Reid, 1507.
Landaus and such like, Newnham, 1515.
Close two-wheeled carriages ("The Duchess"), Harvey, 1605.
Securing wheels to, without fixed centres, Sands, 1691.
Or traversing machines for viewing objects, &c., Weems, 1720.
Raising and preventing windows rattling, &c., Adams, 1852.
Making and attaching shafts to, Tuddenham, 1980.
Fitting axle-boxes to frames of, Dobson, 1956.
Decorating, by transfer printing, Fawcett, 2000.
Springs for, Clark (*Styles & others*), 2041.
Elastic suspension springs for, Johnson (*Le Luyer*), 2084.
Sleighs for carrying and discharging crops, Pattison, 2101.
Raising, &c. landau windows, Gedge (*Montegut & Barou*), 2125.
Water and liquid manure carts or vans, Pearson, 2126.
Carriage poles and attaching collars to same, Colverd, 2157.
Diminishing noise and vibration in, Brakell, 2190.
Endless portable rails for, Clark (*Caillaux*), 2200.
For collecting and elevating cut crops on to wagons, Dean, 2223.
Window sash holders for cabs, &c., Fletcher, 2227.
Opening, closing and locking heads of, Scott, 2290.
Framings for coverings for, Scott, 2290.
Raising and lowering steps; moveable seats for, Scott, 2290.
Reducing vibration, &c. in, Clark, 2293.
Hanging tipping carts on axle-trees, Warner & Woods, 2303.
Cart for spreading manure, seeds, stones, &c., Willacy, 2306.
Carriage seats or heads, opening and closing same, Hart, 2375.
Aprons and linings for, Job, 2433.
Traction springs for, Abel (*Fehrmann*), 2503.
Attaching and releasing traces from, Abel (*Fehrmann*), 2505.
Self-acting releasing coupling, Peck, 2541.
Constructing broughams, &c., Reilly, 2586.
Elliptic springs for, Lake (*Cliff & Vose*), 2712.
Spiral bearing springs for, Byron (*Godley*), 2817.
Suspending bodies of, and springs for, Henry (*Giffard*), 2882.
Self-acting lever machine for propelling, White, 2892.
Arranging, &c. for using power in, Lake (*Nobles*), 2936.
With movable bodies for transferring goods, Clark (*Dathis*), [2951.
Loading and unloading carts, drays, &c., Clark (*Dathis*), 2951.
Equilising pressure on springs of, Miller, 2964.
Controlling motion in, Morgan-Brown (*Ford*), 2972.
Frames, half doors & horizontal sliding windows, Brown, 2996.
Wheel plates for, Garlon, 3061.
Employing T iron, &c. for frames and bodies of, Riley, 3065.
Loading, Haseltine (*Bates*), 3186.
Tipping coal wagons, Lake (*Upsom*), 3198.
Mechanical, for postmen, porters and others, Bodel, 3235.
Constructing and adapting stanchions to, Chapman, 3438.
Adapting front seats of phaetons, &c. for driving, Dakers, 3449.
Furniture of "nickelised" iron, Monckton, 3509.
Automatic safety door fastener, Scourfield, 3563.
Raising, transporting and lowering goods from, Bray, 3619.
Fastening doors of cabs, dog carts and other, Jones, 3657.
Increasing the safety of two wheeled, Jewett, 3805.
Constructing and tipping slop carts and wagons, Bayley, 3923.
Instantly releasing horses from, Staker, 3929.
Guards or shields for omnibus and other wheels, Aitken, 4044.
Controlling motion in, Morgan-Brown (*Ford & Dick*), 4104.
Springs for, Simpson (*Simpson*), 4134.
Mechanism for applying power to, Russell, 4177.
Side tipping waggons, Greig, 4284.
Splints, &c. for repairing shafts, Tongue (*Devrès*), 4361.
Opening and closing doors of, Rammell, 4380.
Carriage poles, Colverd, 4397.
Opening and closing hansom cab windows, Johnson, 4407.
Combined carriage and locomotive, Bonneville (*Havard*), 4417.

**Carriages (heating and warming).** *See* "Heating."

**Carriages (propelling).** *See* "Propelling."

**Carriages (railway).** *See* "Railway carriages."

**Carriages (tramway).** *See* "Tramway carriages."

**Carriages (ventilating).** *See* "Ventilating."

**Cartridge extractors.** *See* "Fire-arms."

**Cartridges and holders; wads:**

Metallic cartridge cases, Jones, 194.
Solid head metallic cases, Nitzke, 654.
Charging and finishing, Lake (*Webb*), 730.
Panniers and means of attaching to fire-arms, Greene, 785.
Solid head metallic cases, Bayliss, 803.
Charging cartridge magazines and making, Burton, 884.
Waistcoat for carrying, Lake (*Black*), 978.
Cases of waterproof tissues, Murrow, 1063.
Asbestos cases or coverings, Cleghorn & Paterson, 1145.
Asbestos "caulfins" and wads, Cleghorn & Paterson, 1145.
For self igniting signal lights, Silas, 1218.
Making and waterproofing, Clark (*De Froideville*), 1275.
Shot-cartridges, Alexander (*Kay & Kay*), 1463.
Solid flanged metallic cases, Bradley (*Berdan*), 1536.
Heading metallic cases, Bradley, 1805.
Making and resizeing, recapping, &c. spent, MacNaughton, 2363.
For blasting purposes, Lloyd (*Holt & others*), 2385.
Holding, filling & turning down, Hammond & Hammond, 2553.
Hydrocarbonated or damp-proof, Davey & Watson, 2641.
Carrying ("Grantley Berkeley belt"), Budden, 2661.
Forming cases of metal foil and caoutchouc, &c., Pieri, 2727.
Cases for rocket signals, Rogers, 3113.
Punching conical cups for metallic cases, Jones, 3129.
Metallic, with internal ribs and external grooves, Engel, 3496.
For blasting purposes, Mackie & others, 3612.
For blasting and mining purposes, Faure & Trench, 3781.
Strengthening the base of cases, Johnson (*Gauthey*), 3822.
Shells for sporting, Hughes (*Parker*), 4058.
Cartridge cases for shot or projectiles, Pieri & Smith, 4073.

**Carts.** *See* "Carriages."

**Carving horn.** *See* "Bone."

**Case-hardening and tempering.** *See* "Annealing."

**Casements.** *See* "Windows."

**Cases for clocks and watches.** *See* "Clocks."

**Cases or boxes.** *See* "Boxes."

**Casks:**

Stave-making machine, Woodley & Anderson, 102.
Siphons for drawing spirits, &c. from, Rew, 300.
Valves for admitting air into, Edwards, 384.
Waterproof mastic for coating, joining, &c., Bageau, 619.
Measuring and indicating liquids drawn from, Hughes, 734.
Constructing and attaching cocks to, Goold, 813.
Rolling hoop iron with holding ridges for, Bradshaw, 872.
Containing explosive liquids, protecting, Hendrix, 1011.
Grippers or tongs for lifting, &c., Stevens (*Reid*), 1014.
Filling, with ale or beer, Webb, 1031.
Ferrules for inserting taps in, Russ, 1168.
Of uniform section, and applying a piston to, Morgan, 1196.
Cooling liquids in, while being drawn off, Harrison, 1244.
Withdrawing liquids from, Wilsher, 1543.
Cooling while drawing off from, Clark (*Ridgway*), 1694.
Spring hinge for tap and vent holes, Wood, 2123.
Withdrawing liquids from, by air pressure, Murphy 2267.
Conical collar or packing for fixing taps in, Taylor 2447.
Filling kegs, Clark (*Sherwood*), 3097.
Tubes and valves for discharging and filling, Atkins, 3101.
Taps, &c. for drawing liquids from, Edwards, 3173.
Preventing frothing or "fobbing" in racking, Webb, 3372.
Cutting staves for and "close trussing," Slater, 3714.
Beating coffee and other seed casks, Manning & Tydeman, 3845.
Constructing, of paper sheets, &c., Carter (*Mason*), 3878.
Siphons for drawing wine, beer, &c. from, Shanks, 4127.
Complete machinery for making, Philippe & Pinet, 4243.
Metallic, for containing gunpowder, &c., Haycraft, 4478.

**Casters:**

Constructing and securing, to furniture, Gibson, 435.
Ball, Johnson, 674.
Ball, Stevens (*Redfield*), 980.
Moulding bowls of plastic clay, Gaskell & Gaskell, 1345.
Forming the socket & horns from sheet metal, &c., Atkins, 1925
Ball, Terrell, 2794.
With india-rubber cushion, Parry, 3897.
Ball, Wright, 4614.

**Casting and moulding metals :**

Blocks for mounting stereotype plates, Mason, 99.
Snaps or portable connectors, Cockings (*Reynolds*), 154.
Heating container in moulding piping, Harrop, 485.
Lead and tin pipes, Harrop, 485.
Tin-lined lead piping, Harrop, 485.
Making and coating moulds for, Toussaint, 619.
Puddling furnace hollow bed plates, Newton & Newton, 677.
Railway, tramway and other disc wheels, Light, 710.
Applying pressure to remove blown holes in, Stone, 714.
Rims upon perforated plates as glass holders, Hyatt, 783.
Ingots from fluid steel or iron, Willans, 1038.
Tappets, cams or eccentrics, &c., Hattersley & Hebden, 1093.
Bars of thermo-electric piles, Clamond, 1199.
Moulds for casting ingots, Leffler, 1229.
Ingots for steel rails and girders, Fox, 1486.
Metal founders' blacking, Sellars, 1491.
Pattern plates used in moulds, Chamberlain & Smith, 1551.
Grinding foundry blacking, Willans, 1612.
Moulds for casting ingots, Moorwood, 1772.
Shovels, spades, scoops, &c., Abel (*Blake*), 1843.
Tubular and annular castings, Willans, 1911.
Tubes, calico printers' rollers, &c., Torr, 1924.
Flasks and moulds for, Boyd & Boyd, 1982.
Silver-like alloy for castings, Parkes, 2064.
Collars on pipes or traps, Murdoch (*Shaw*), 2246.
Hinging part moulds to sole plate, Heaton & Stoker, 2603.
Forcing ingots from their moulds by presses, Wilson, 2816.
Lining for moulds, Hamer & Giles (*Farrar & Whiting*), 2881.
Moulds or flasks for, Hamer & Giles (*Farrar & Whiting*), 2881.
Metal founders' blacking, Pattison, 3029.
Metal founders' blacking, Pattison, 3030.
Hydraulic pressing machinery for use in, Whitworth, 3062.
Hydraulic pressing machinery for use in, Whitworth, 3064.
Drawing air and vapour from moulds in process of, Holt, 3131.
Handles on to tangs of knives, forks, &c., Hoyland, 3239.
Metal founders' blacking, Allan, 3282.
Door knobs and spindles, Brewer (*Carpenter*), 3357.
Gratings for pavement lights, &c., Evans, 3367.
Chilled rolls, Robbins & others, 3408.
Furnaces for conveying molten metal for, Stone, 3755.
Chilled rolls, Taylor & Farley, 3760.
Parts of sheep shears, Woolhouse, 3764.
Ingots for copper singe plates, Sumner & Waldenström, 3812.
Ribs on cylinders of hydraulic presses, Dack, 3922.
Cylinders and central casing of steam-engines, Hughes, 3976.
Forming moulds for, Farnsworth & Sansom, 4096.
Steel tramway wheels, Hadfield, 4184.
Various parts of gas-burners, Sugg, 4227.
Applying pressure in, Haseltine (*Yarr*), 4233.
Metal founders' blacking, Davies & others, 4338.
Toothed wheels and circular articles, Heys, 4358.
Mould box, trammel and fixed wheel for use in, Heys, 4358.
Machinery for, under pressure, Mackintire, 4469.

**Casting and moulding plastic materials :**

Asphaltum concrete into blocks, Van Camp & Clark, 33.
Moulds for joining telegraph cables, Truman, 124.
Slag into blocks, slabs, pipes or tiles, Woodward, 128.
Jars, pots, &c. from powdered clay, Maw, 264.
Glass letters and figures, Greener, 268.
Artificial stone, &c., Hahn, 360.
Asbestos, Hyatt, 478.
Moulding ligneous tissues, Murrow, 1063.
Glass tubes and cylinders, Chedgey, 1075.
Tiles, &c., Mayer, 1082.
Hard rubber water-meter screws, Haseltine (*Read*), 1223.
Carbonaceous matter with iron ore, Healey, 1315.
Caster bowls, knobs, &c., of clay, Gaskell & Gaskell, 1345.
Concrete pipes, Butler (*Stockwell*), 1482.
Tiles and slabs, from slag or scoria, Moore, 1496.
Wrappers or envelopes of seed presses, Searle, 1630.
Paper-pulp for boxes, &c., Mesick (*Wheeler & Jerome*), 1701.
Material for horse-shoes, boot soles, &c., Baker, 1794.
Moulding glass tumblers, basins, &c., Haley, 1927.
Pressing, squeezing or moulding clay, Harcourt, 1961.
Compound materials for furniture, &c., Brannon, 2027.
Retorts and other heavy articles of clay, Cliff, 2034.
Tobacco pipes, McLuckie, 2036.
Materials for and moulding ceilings, doors, &c., Brannon, 2128.
Screws of vulcanite, &c., Roberts, 2199.
Wheels and bodies of perambulators, Pasco & Hawkins, 2240.
Tobacco pipes and other articles in pipe clay, Liston, 2382.
Tiles, drain pipes, &c., Clubley, 2534.
Flasks for moulding pavement blocks, Zadig, 2726.
And tamping concrete pipes, Butler (*Stockwell*), 2872.
Preparing and moulding, Bolton, 2935.
Slag pipes, tiles, slabs, columns, &c., Paterson, 3325.
India-rubber door mats, with projections, Harris, 3453.
Several tiles and quarries at one time, Inskeep, 3477.
Pipes for water-conduits, &c., Gedge (*Granjon*), 3634.
And pressing various substances, Kingsford, 3728.
Tiles, &c., Whittaker, 3743.
Pipes, sewer bottoms, &c., Oppenheimer (*Hirsch*), 3884.
Presses for use in moulding glass, &c., Sowerby, 4065.

**Casting or moulding bricks.** *See* "Bricks."

**Casting or moulding fuel.** *See* "Fuel."

**Catches and door fasteners.** *See* "Locks."

**Cattle (conveying on board ship) :**

Portable stalls and fittings for, Relph, 2228.
Constructing and fitting pens for, Beavan, 3378.

**Cattle food.** *See* "Food for animals."

**Cattle sheds.** *See* "Stables."

**Cattle trucks.** *See* "Railway carriages."

**Ceilings :**

Fireproof ornamental illuminating, Hyatt, 783.
Fireproofing and uniting wood for, Muratori, 931.
Material and mode of making, Brannon, 1246.
Cleaning, whitewashing, painting and varnishing, Thys, 1284
Stone-coating, McGrigor (*Robertson*), 2047.
Compound material for and constructing, Brannon, 2128.
Converting beams into ornamental panelled, Hyatt, 2558.
Applying japanned metals to, Hughes, 2593.

**Cement :**

Burning combined foul lime and coke, &c. for, Forbes, 34.
Drying, by heated air, Gibbs, 50.
Fire-resisting asbestos plastic, Hyatt, 478.
Kiln for burning, Williams & Scott, 599.
For coating wood, stone, brick and metal work, Tugwood, 943.
Refractory, for lining blast and other furnaces, Horne, 1451.
Using "galenite" for mastics, David, 1454.
Using lithomarge in making hydraulic, Willans, 1612.
Or bituminous mastic, Rae, 1674.
For jointing glass lined vats, Hartley, 1768.
Cement powder for making manure, Hughan, 1869.
Portland cement from artificial fuel ashes, Hughan, 1922.
Compound, and applying same, Brannon, 2029.
Material, slabs or sheeting, Brannon, 2128.
Making, from residue of alum works, Beatson, 2272.
Making Portland & like cements from coke, &c., Forbes, 2274.
Powder for coating fire-proof, Holland 2476.
Using "Brynamman" clay for fire-proof, Holland, 2476.
Composition, for roads, side-walks or floors, O'Friel, 2540.
For binding materials for fuel, Murdoch (*Roettger*), 2533.
Or non-radiating composition, Clark (*Leydet*), 2555.
Mechanism and apparatus for making, Le Mesurier, 2594.
Non-conducting, for coating boilers, &c., Broughton, 2634.
Making, from coke, chalk, &c., Forbes, 2822.
Non-conducting, for boilers, flues, ovens, &c., Peacock, 2833.
Producing hydraulic, in making iron and steel, Lyttle, 2864.
Making, for artificial marble or stone, Roettger, 2868.
Fitting bed-stone and spindles in cement mills, Howe, 3042.
Separating water from materials for making, Scott, 3076.
Or "glazune" for uniting glass to iron, &c., Hartley, 3094.
Sheets and plates for holding cements, Hyatt, 3171.
Roman and like cements from coke, &c., Forbes, 3182.
Making, from foul lime and coke or coke breeze, Forbes, 3346.
Kiln for calcining, Siemens & Stein, 3467.
Purifying gases or vapours from kilns, Gard, 3502.
Refractory and hydraulic, Horne, 3641.
Breaking or crushing, Burge & Hall, 3696.
From sewage sludge, &c., Vallé, 3784.
Portland cement from fuel residue, Forbes, 3876.
Using "shale" with limestone in making, Holden, 3903.
From carbonate of lime precipitate, Scott, 4006.

**Centrifugal machines :**

Filter surface for centrifugal turbines, Deny, 16.
Corrugating drums of, Lafferty & Lafferty, 754.
For draining sugar, Lafferty & Lafferty, 755.
Supported and driven from below, Day (*Weston*), 772.
Engines for driving, Alliott, 942.
For drying or draining sugar, &c., Alliott & Fryer, 1772.
Preventing vibration and jar in, Hepworth & Paulding, 1798.
For draining sugar, Duncan (*Weinrich*), 1870.
For filtering liquids from solids, Johnson (*De Loynes*), 1914.
For draining peat, Monckton, 2581.
Or hydro-extractors for drying sugar, &c., Müller, 2773.
Facilitating the removal of sugar from, De Mornay, 2797.
Making cakes of sugar in, ready for stoving, Martineau, 3067.
Ventilator attachment for, Newton (*Downer*), 3553.
For making sugar, drying fibres, &c., Newton (*Downer*), 3553.
Forming revolving drums of, Shears, 3759.
For throwing air, &c. for motive-power, Rammell, 3813.
Applying steam power for driving, Fletcher, 3844.
Storing up power in stopping, for starting, Fletcher, 3844.
Baskets for, and adjusting spindle of, Fletcher, 3844.

**Ceramic wares.** *See* "Earthenware."

**Cereals (dressing).** *See* "Grain (treating)."

**Cesspools:**
Deodoriser for, Monckton, 2581.
Portable, for closets, Bonnefin, 3384.
Powder for deodorising and disinfecting, Bond, 3799.

**Chaff-cutters:**
Applying pressure in, Wilson & Battersby, 1651.
Safety feeding guards and elevators for, Fison, 2092.
Propelling or driving, Monckton, 3502.
Combined oat-crusher, turnip cutter and, Edwards, 3617.
Driving bottom and top rollers of, Edwards, 3617.
Applying pressure; clutch boxes, Wilson & Battersby, 3798.
Worms for driving wheel, Summerscales & Sons, 3848.
Continuous cutting, Nayler, 4125.

**Chains; chain cables:**
Retention apparatus when paying out, Lenox, 67.
Welding copper, Benson (*Rehbein & others*), 405.
Adapted to gas retort charging apparatus, Warner, 864.
Clip snap or fastener for, Bennett, 945.
Links and splicing shackles, Clark (*David*), 975.
For ferries, hoists, cranes, &c., Obach, 1343.
Forming links for cables and, Gray & Taylor (*Selden*), 2772.
Pontoons for raising cables from wrecks, Darley, 2782.
Steel links for, Handyside, 2837.
Chain cutters for coal getting machines, Alexander, 3009.
Slip buckle or link for, Clayton (*Owen*), 3050.
Compound tool for making links for, Harrison, 3083.
Spiked pitch, for "overhead" sewing-machines, Laing, 3493.
Coating and fastening voltaic chains, Pulvermacher, 3937.
Endless, for carrying gill bars or combs, Kennedy, 4016.
Endless, for carrying hackle bars, Whitehead 4017.

**Chains for wear.** *See* "Jewellery."

**Chairs.** *See* "Furniture."

**Chairs for railway rails.** *See* "Railways."

**Chalk.** *See* "Lime."

**Chandeliers.** *See* "Lamps."

**Channels (deepening).** *See* "Dredgers."

**Character impersonations:**
Effecting instantaneous changes of costume, Morris, 2334.

**Charcoal and coke:**
Combining steam-boiler with carbonising oven, Dudgeon, 20.
Peat, Dudgeon, 22.
Kiln or oven for coking or carbonising, Aitken, 57.
Coke for smelting alloys, Browne (*Foundries & Forges Co.*), 422.
Retorts, ovens or kilns for producing coke, McBeath, 601.
Drying bone black, Clark (*Farley*), 876.
Retorts for reburning animal, Buchanan & Vickess, 923.
Charring peat, Barff & Kidd, 971.
Charring peat, Radeke, 1032.
Coke ovens, Jensen (*Erichsen & Maardt*), 1072.
Charring peat, Lyttle, 1096.
Peat, Imray (*Hays*), 1104.
Reburning or revivifying animal, Denton, 1130.
Purifying coke for smelting ("smelting coke"), Coombe, 1344.
Peat and wood, Radeke & Smyth, 1355.
Blacking for metal founders, Sellars, 1491.
Grinding carbonaceous matters, Willans, 1612.
Purifying coal, lignite and peat coke, De Nomaison, 1874.
Kiln for reburning animal, Harvie & Lockerbie, 2002.
Utilising waste gases from coke ovens, Black & Leiper, 2013.
Revivifying animal, Crosfield & others, 2024.
Charring peat, Danchell, 2048.
Carbonised peat charcoal, Clark (*Jenty*), 2270.
Vegeto-mineral coke, Clark (*Jenty*), 2270.
Coke for making pig iron and for fuel, Breckon, 2287.
Emptying animal charcoal furnaces, Wirth (*Langen*), 2360.
Coke ovens, Johnson (*Gobiet*), 2512.
Treating bone black vapours, Johnson (*Silliman*), 2520.
Solutions for revivifying, Whitthread, 2532.
Charring peat, Monckton, 2581.
Using heat from coke ovens for drying sewage, Bennett, 2710.
Hardening uncrystallised carbon, Macintosh, 2945.
Furnaces for revivifying, Blaziock & Bauer, 2973.
Blacking for metal founders, Pattison, 3029.
Cooling coke for metal founders' blacking, Pattison, 3030.
Producing coke from anthracite, &c., Penrose & Richards, 3085.
Producing coke from anthracite, &c., Penrose & Richards, 3251.
Using still coke, &c. for metal founders' blacking, Allan, 3282.
Cleansing and revivifying animal, Whitthread, 3343.
For melting alloys, Browne (*Foundries & Forges Co.*), 3396.
Converting wood, peat, &c. into carbon, Monckton, 3509.
Coking coal, &c., and collecting products, Ormiston, 3560.
Utilising waste gases in coking coal, Coleman, 3577.
Carbon usable as, from spent tan, Murdoch (*Hounsaij*), 3583.
Carbonising spent tan, Murdoch (*Hounsaij*), 3583.

**Charcoal and coke—*cont.***
Treating animal, for sugar refining, Espeut, 3589.
Residue in making gas from sewage sludge, Vallé, 3784.
Producing coke containing lime, Hackney, 3795.
Purifying coke for smelting iron, Smyth & Simpson, 3840.
Coking coal dust, &c., Lyttle, 4080.
Retorts for making, in a continuous manner, Ireland, 4215.
Obtaining a substitute for animal charcoal, Scott, 4305.
Carbonising peat, Davies & others, 4338.
Obtaining coke, Johnson (*Moreau*), 4387.
Substitute for bone black, Knab, 4421.

**Checker-men.** *See* "Games."

**Checking apparatus for tram-cars.** *See* "Registering."

**Checking pawnbrokers' pledges.** *See* "Registering."

**Cheese:**
Peat charcoal for preserving, Monckton, 2581.
Cutting out wooden moulds, Johnson (*Goulas & Co.*), 3893.

**Chemicals (grinding).** *See* "Grinding."

**Cheques and monetary documents:**
Issuing labels of identification with, Strachan, 260.

**Chest expanders;**
Making and adapting safety pins to, Snow (*Greely*), 2834.

**Chest protectors.** *See* "Medical treatment of man."

**Chicory:**
Cockle-stove for roasting, Perry, 2559.

**Chignons.** *See* "Hair-dressing."

**Chimney pieces.** *See* "Mantel-pieces."

**Chimneys and chimney caps.** *See* "Flues."

**Chinaware or porcelain.** *See* "Earthenware."

**Chisels.** *See* "Tools."

**Chloride of lime (packing).** *See* "Packing."

**Chlorine and chlorides:**
Treating the porous substances used in making, Deacon, 163.
Chlorides of lime, silver and zinc, Monckton, 265.
Chlorides of zinc, magnesium & aluminium, Brewer (*Joly*), 433.
From limestone, McBeath, 601.
Chloride of calcium, Harrison, 1344.
Chlorides of ammonium, calcium, tin, iron & zinc, Stuart, 1276.
Chlorine, Königs & Henderson, 1748.
Chlorides of calcium and sodium, Henry (*Faucheux*), 2483.
Chlorides of lead, zinc, copper & tin, Newton (*Roswag*), 3451.
Chloride of calcium, Newton (*Roswag*), 3451.
Chlorine, Townsend, 3483.
Chlorides of zinc and silver, Monckton, 3509.
Making chlorine, Wirth (*Hasenclever*), 4291.
Chloride of ammonium, Clarke & Smith, 4448.

**Chocolate creams.** *See* "Confectionary."

**Chopping or mincing meat.** *See* "Mincing."

**Chrome waste.** *See* "Alkalies."

**Chromium:**
Decolorising acetate of lime for acetate of, Condy, 4037.

**Chronometers.** *See* "Clocks."

**Chucks for lathes.** *See* "Turning."

**Churns:**
For making "Buttereine," Haseltine (*Smith*), 1219.
For making butter, Bradford, 1272.
Air valve for "barrel," Eastwood & Garside, 3032.
For making butter, Bradford, 3337.
Constructing and actuating, Monckton, 3509.
Cutting out wooden butter, Johnson (*Goulas & Co.*), 3893.

**Cigar cases.** *See* "Tobacco."

**Cigar lights.** *See* "Matches."

**Cigars and cigarettes.** *See* "Tobacco."

**Cinder or slag.** *See* "Slag."

**Cinder sifters.** *See* "Sifting."

**Circumferentors.** *See* "Mathematical instruments."

Cisterns; tanks; vats; reservoirs:
Vats, Jonsen (*Erichsen & Edwards*), 138.
Hot water, Lewis & Wood, 180.
Filter for water, Huerne, 207.
Service or supply, for water-closets, &c., Lamont, 226.
Deodorising and filtering traps for, Synge, 254.
Making non-corrodible, Tylor & Tylor, 277.
Preventing water-waste in, Tylor & Tylor, 277.
Measuring, for supplying closets, lavatories, &c., Charles, 353.
Service or supply, for closets, urinals, &c., Dennis, 431.
Enamelling or lining filtered water tanks, Atkins, 506.
Waterproof mastic for coating, joining, &c., Bageau, 649.
Used in ice-breaker ships, Brewer (*Weedermann & Sons*), 660.
For use in fireproofing buildings, Taylor, 751.
Used in pickling tin plates, &c., Hopkins & others, 769.
Roof of buildings used as water tanks, Dunlop, 820.
For separating or cleaning grain and seeds, Notara, 890.
Lining, with panels of waterproof tissue, Murrow, 1063.
Automatic apparatus for flushing reservoirs, Birch, 1157.
Measuring, for water-closets, &c., Ronald & Farmer, 1215.
For use in fire-proof buildings, Taylor & others, 1331.
Vacuum tank for drying peat, Radeke & Smyth, 1355.
For flushing and preventing waste, Brine & Allen, 1530.
Cutting metal plates for tanks, Dawes & Holt, 1726.
Constructing glass vats, Hartley, 1768.
Compound for and constructing ships', Brannon, 2028.
Traps for waste pipes of, Henty, 2127.
Compound material for and constructing, Brannon, 2128.
Cooling tanks, Haseltine (*Bate*), 2352.
Steam jacket for fat rendering tanks, Lake (*Firman*), 2419.
Strainer for, Finch, 2499.
Cement for lining tanks and reservoirs, O'Friel, 2500.
Tanks for filtering sewage, water, &c., Willett & others, 2567.
Arranging tank to form hot-water tender, Oswald & Oswald, [2612.
Preventing waste of water in, Aldous, 2694.
Refining tanks for oils and fats, Hollands & Ilbery, 2804.
India-rubber sheets for lining, Thomson & Watson, 2918.
Plate caulking tool, Holroyde (*Connery & Holroyde*), 2932.
Using "glazune" in lining, with glass, Hartley, 3084.
Sluices for reservoirs, Stoney, 3103.
Mastic of asphalte for reservoirs, Skinner, 3217.
Depositing tanks for purifying sewage, McIntyre, 3225.
Tanks and reservoirs for storing rain water, Bessemer, 3319.
Tanks for lixiviating low-class ores, Clarke, 3339.
For supplying water to closets, urinals, &c., Lynde, 3352.
Tanks for transporting gunpowder, &c., Macklin & Moore, 3733.
Measuring apparatus for and preventing waste in, Tylor, 3735.
Indicating level of liquid in vats, Clark (*Lartigue*), 3771.
Filtering tanks for sewage, Vallé, 3784.
Tanks for slop carts and waggons, Bayley, 3923.
Tank or water magazine for gunpowder, oils, &c., Burney, 3914.
Concrete underground tanks or reservoirs, Potter, 3946.
Uniting asphalte, cement, &c. for lining, Macleod, 3994.
Vats for boiling and reducing saltpetre, Haycraft, 4016.
Intermittent, for boiler feed apparatus, Péne, 4047.
For making aërated and other waters, Ross, 4414.
For use in bottling still liquids, Ross, 4415.
Tanks for treating copper and silver, Clarke & Smith, 4448.

Clamps:
Used as vices, wrenches and hand screws, Marsh (*Kinney*), 1365.
For holding fabrics, cords, letters, &c., Price & Warn, 1986.
For fitting rock-drill cylinders, Hosking & Blakewell, 2760.
Adjustable needle, for sewing-machines, Guinness, 3044.
Of "nickelised" iron, Monckton, 3509.
For use in darning stockings, &c., Curtis (*Hosmer*), 3941.
For use in tempering ovens, Jensen (*Simonds & Ferson*), 4332.
For repairing broken rods, &c., Tongue (*Devrits*), 4361.

Clapptograph. *See* "Telegraphs (electric)."

Clarifying liquids, &c. *See* "Filtering."

Clasping pins. *See* "Pins."

Clasps. *See* "Buckles."

Clay and peat (excavating). *See* "Excavating."

Clay mills. *See* "Grinding."

Cleaning boots and shoes. *See* "Boots."

Cleaning grain. *See* "Grain and seeds."

Cleaning horses. *See* "Harness."

Cleaning knives. *See* "Knives."

Cleaning land. *See* "Tilling."

Cleaning machinery belts. *See* "Bands."

Cleaning tubes. *See* "Tube cleaners."

Cleansing cotton waste. *See* "Rags."

Cleats for boats. *See* "Ship-building."

Clere-stories and louvres. *See* "Windows."

Clinical thermometers. *See* "Thermometers."

Clipping and shearing animals. *See* "Shears."

Clips and hooks. *See* "Hooks."

Clips for cloth-stretching. *See* "Finishing."

Clips for letters, &c. *See* "Files."

Clocks; watches; time-keepers:
Keyless watches, Wilson, 378.
Safety watch pocket, Thwaites, 483.
Imitation marble clock cases, Deléon, 525.
Works mounted on hands (Magic clock), Clark (*Robert*), 547.
Invisible springs for watch case hinges, Zalkind, 742.
Moving or setting by electricity, Browne (*Herlert*), 642.
Watch cases, Bennett, 943.
Indicating when wound up or run down, Dennison, 1113.
Clasp or fastening for watches, Webling, 1127.
Lever escapement mechanism, Schoof, 1249.
Tell-tale, Grisar, 1312.
Enamelling dials, Robinson, 1356.
Self-winding ("electrical winder"), Wignall, 1442.
Impelling pendulums by electric currents, McKellen, 1506.
Cases for displaying watches, Holtermann, 1697.
For indicating hire of cabs, Macpherson, 2202.
Automatic regulator for spring, Lake (*Muchin*), 2418.
Superposed pendulum and escapement, Mills (*Longis*), 2540.
Portable time detector for watchmen, Wirth (*Hahn*), 2868.
Illuminating dials by electricity, Haseltine (*Cook*), 2717.
Electro-magnetic apparatus for operating, Greenwood, 3040.
Illuminating watches, Lake (*Lambrecht & Wippern*), 3351.
Setting alarm-clocks, Trotter, 3404.
Making of "nickelised" iron, Monckton, 3509.
A "self-adjustment" to the going barrel of, Collett, 3924.
Escapements, Mills (*Tiffany & Co.*), 4076.
Spring mechanism for, Johnson (*Hitchcock & others*), 4283.
Ornamenting clocks, Clark (*Ulmann*), 4356.
Escapement and pendulum impulse movements, Lange, 4363.

Clothes-pegs. *See* "Pegs."

Cloths (darning). *See* "Sewing."

Clutches:
For operating treadle machines, Wright, 140.
Differential friction, for cranes, &c., Napier & Napier, 588.
Self-acting, for looms, Jackson & others, 707.
For operating treadle machines, Wright, 877.
For caissons or pontoons for raising ships, Scott, 2502.
For operating treadle machines, Wright, 2903.
Sliding, for reapers and mowers, Yull, 3102.
Friction clutch or coupling, Craig & others, 3494.
For agricultural machinery, Wilson & Battersby, 3738.
For operating treadle machines, Wright, 3958.
For feed rollers of circular saw benches, Haigh, 4219.

Coach houses. *See* "Buildings."

Coactile. *See* "Felt."

Coal (mining). *See* "Mining."

Coal vases and boxes:
Rivetting the handles on, Mohr, 152.
Depositing nickel on metallic parts of, Underwood, 2983.
Making and nickelising metallic parts of, Underwood, 3126.

Coal washing. *See* "Washing."

Coast lights. *See* "Lighthouses."

Coating and covering cylinders:
Used in dyeing and printing, Mewburn (*Chalumet*), 136.
With fireproof wood, Muratori, 931.
Mounting card fillets on carding cylinders, Walton, 1376.
In rotary web printing machines, Nicholls, 2068.
Clothes wringers with rubber, Whiteside (*Howlett*), 2882.
Iron cloth rollers of beetling machines, Smith, 2768.
Of paper bronzing machines, Leeming & others, 3704.

Coating cloth, leather and fabrics:
Waterproof mastic for, Bageau, 649.
Composition for, Muratori, 931.
In making compound fabrics, Rowan & Reid, 1397.
Compounds or "Plastique" for, Lake (*Bell*), 2289.
Belts or bands for machinery, Fleming, 2592.
Composition for, Hunstone & Thorpe, 3429.
Waterproof solution for, Wilkinson, 4026.
Compounds or "Plastique" for Lake (*Bell*), 4343.

**Coating india-rubber articles:**

Valves, packings, &c., Quin, 63.
Valves, pipes, tubes, &c., Quin, 3902.

**Coating metals:**

Foil for artificial teeth, Blake, 92.
Telegraph wires, Truman, 124.
Anti-fouling and protective composition for, Blair, 235.
Depositing by electricity, Monckton, 265.
Telegraph wires, Walker, 293.
Telegraph wires, Macintosh, 447.
Fire-resisting asbestos plastic for, Hyatt, 478.
Covering telegraph cables with lead, Harrop, 485.
Lining lead piping with tin, Harrop, 485.
Non-conducting mastic for, Craps & Derihon (*Reintjens*), 529.
Anti-fouling compound for, Nangle, 557.
Moulds, cores and boxes, Toussaint, 619.
Vessel or "tin-pot" used in tinning, &c., Morris, 711.
Pickling tin and terne plates, Hopkins & others, 769.
Pickling tin & terne plates, Gething, Jenkins & Gardner, 779.
Perforated plates of illuminating gratings, Hyatt, 783.
Composition for, Muratori, 931.
Cement for preserving iron work, Tugwood, 983.
Tinning sheets or plates, Morewood & Rogers, 1009.
Anti-fouling composition or paint, Jones & Howatson, 1173.
Cleansing tin or terne plates, Edwards & others, 1417.
Depositing steel by electricity, Noad, 1422.
Electricity as applied to, Johnson (*De Mersanne*), 1446.
Compound of lead or "galenite" for, David, 1454.
Preparing articles to be coated, Brook & others, 1492.
Preparing nickle solution for nickelising, Baker & Unwin, 1403.
Preservative composition for, Ara & Del-Bubba, 1595.
Composition for covering polished surfaces, Stead, 1598.
Cleaning tin plates, Griffiths, 1782.
Or lining iron pipes, Darwin, 1787.
Telegraph wires, Zanni, 1855.
Depositing, on cornets and other instruments, Dupont, 1947.
Inner surfaces of iron ships with plates, Thomson, 2044.
Iron telegraph poles, Muirhead, 2074.
Applying "Zapotine" for, Conybeare & Naphegyi, 2106.
Composition for ("Prophylactic"), Burrell, 2248.
Heating, pickling and swilling tin plates, Taylor, 2411.
Depositing copper, &c. on metals, Unwin & others, 2454.
Cement or composition for, Clark (*Leydet*), 2555.
Lining or covering for pipes, Hughes, 2593.
Cooking stoves, Stone, 2615.
Non-conducting cement or plaster, Peacock, 2833.
Compound india-rubber sheets for, Thomson & Watson, 2913.
Barrels, locks, &c. of small-arms with rubber, Silver, 2938.
Handles, &c. of coal boxes and other cases, Underwood, 2953.
Pickling and coating iron plates in bulk, Flower, 2957.
Submarine cables, Highton, 3006.
Protecting articles to be gold coated, &c., Thompson, 3033.
Handles, &c. of coal boxes and other cases, Underwood, 3136.
Screw propeller blades with copper, Howden, 3246.
Cleaning, &c. tin and terne plates, Gilbertson & others, 3312.
Lining pipes with vitreous stoneware, &c., Bessemer, 3319.
Electro-depositing copper on boilers and plates, Unwin, 3403.
Electro-plating or "nickelising," Monckton, 3509.
Preparing anodes of nickel for nickelising, Perkins, 3587.
Battery for depositing metals, Pulvermacher, 3937.
Cleaning tin, terne and other plates, Thomas & others, 4222.
Recovering sulphuric acid, from refuse in, Pughsley, 4373.
Purifying scouring water of tin-plate works, Pughsley, 4373.
Enamelling pipes, Haseltine (*American Enamel Co.*), 4486.

**Coating miscellaneous substances:**

Balls, slabs, &c. of caustic alkali, Newton (*Babbitt*), 1601.
Coal, tar, pitch, asphalt and paraffin, Newton (*Babbitt*), 1601.
Walls, ceilings, floors, &c., McGrigor (*Robertson*), 2047.
Compounds or "Plastique" for, Lake (*Bell*), 2250.
Compounds or "Plastique" for, Lake (*Bell*), 4343.

**Coating or covering elastic strands:**

For warps in weaving elastic fabrics, Turner, 855.

**Coating or covering steam-boilers:**

Asbestos felt for, Hyatt, 478.
Non-conducting mastic for, Craps & Derihon (*Reintjens*), 529.
Composition for, Muratori, 931.
Cement or composition for, Clark (*Leydet*), 2555.
By hair and a non-conducting cement, Broughton, 2654.
Quilted fabric for covering, Gedge (*Gaudefroy*), 2733.
Non-conducting cement or plaster, Peacock, 2833.
Refractory cement or plaster for, Horne, 3641.
Composition for, Stone, 3801.

**Coating ships' bottoms.** *See* "Ships' bottoms."

**Coating stone.** *See* "Stone."

**Coating walls.** *See* "Walls."

**Coating wood.** *See* "Wood."

**Coats and trousers.** *See* "Wearing-apparel."

**Cockle-stoves.** *See* "Fireplaces."

**Cocks, taps and faucets:**

For regulating fluid pressure, Clark (*Casement*), 70.
Constructing, to prevent leakage, Tylor & Tylor, 277.
Bib or drawing off, Underhay, 499.
Ball and other taps or valves, Hazeldine, 565.
Ball valves or, Woodcock, 720.
Packing steam, gas, water and other, Mallinson, 752.
For high or low pressure, Cooke & Myhill, 798.
For drawing off beer, wine, water, &c., Gould, 813.
Tap for filling bottles, Tapp, 833.
Dispensing with packing in taps, Bayley & Bayley, 897.
Taps and automatic stop, bib and ball cocks, George, 949.
For reversing three cylinder engines, Willans, 974.
For hot fluids, Nield, 1035.
Constructing and packing plug, Haigh & Barrett, 1116.
For drawing off liquids from casks, &c., Russ, 1168.
Ball, bab and other, Pearson, 1175.
For steam, gas, air, water, &c., Pearson, 1176.
High pressure steam, water or other fluid, Radford, 1321.
Connecting to articles, Thompson, 1336.
For operating pneumatic breaks, Westinghouse, 1540.
Stop, for oscillating steam-engines, Herring, 1641.
For delivering beer, &c., Clark (*Ridgway*), 1694.
Drawing off water and other liquids, Pontifex, 1733.
Self-acting ball and other cocks, Heale & Gowan, 2017.
Valve spindles for pressure cocks, Heale & Gowan, 2017.
Double way supply valve, Wilson (*Craig & Brevoort*), 2059.
Spring hinge for taps to prevent leakage, Wood, 2123.
Bodies or barrels and plugs for main cocks, Wells, 2338.
Employing valves as discharge taps, Whitton, 2431.
Collar or packing for fixing taps in casks, &c., Taylor, 2447.
Bottle stoppers, serving as discharge cocks, Coad, 2486.
Valve and float for use in lieu of ball cocks, Finch, 2499.
Tap or valve for decanting aërated beverages, Elias, 2577.
Constructing faucets, Haseltine (*Roach*), 2640.
Combined stand pipe and key for turning main, Clarke, 2660.
Ball or dish, for cutting off water in tanks, Aldous, 2694.
Valves or cocks for steam, gas, water, &c., Else, 2711.
Ball valves for cisterns, stand pipes, &c., Payton, 2742.
Lubricating taps for steam-engines, Lumb & Bottomley, 2781.
Lock tap or valve for gas-fittings, Jones, 2797.
Bib or stop cocks, Johnson, 2824.
For steam-gauges, hydrants, &c., Mewburn (*Weston*), 2842.
Or valves, for steam, water or gas, Houghton, 2880.
Arranging hydro-thermic press cocks, Tommasi, 2896.
Tap or valve for decanting aërated liquids, Goddard, 3011.
Faucet for filling bottles, &c., Clark (*Sherwood*), 3097.
For discharging or filling bottles and vessels, Atkins, 3101.
Applying a key boss to wood taps; making taps, Edwards, 3173.
Arranging steam cylinder waste water cocks, Holt, 3227.
Plug cocks for steam and hot fluids, Furness, 3287.
Regulating cock for engine exhaust pipes, Berryman, 3306.
Sieve taps, accessible for cleaning, Ainsworth, 3405.
Ball valves for cisterns, Huggett, 3439.
Of "nickelised" iron, Monckton, 3509.
For regulating pressure and supply, Pollard & Carter, 3720.
Ball or float valves, Tylor, 3735.
Test, try or gauge cocks for boilers, &c., Dixon, 3804.
For injectors & water elevators, Johnson (*Vobe & Cuau*), 3807.
Insulating faucets of tea urns, &c., Clark (*Tiffany & Co.*), 4034.
Loose seatings for taps, Westley, 4045.
For receivers of drawing-off siphons, Shanks, 4127.
Three-way cocks for use in feeding furnaces, Russell, 4177.
Stop-cock for gas fittings, Sugg, 4227.
Of copper, with convex rim on seating, Foster, 4234.
Packing or rendering tight, tap spindles, Allen, 4382.
Steam cock for engine breaks, Kitson & Batchelor 4411.
Ball valves for cisterns, &c., Powell, 4413.

**Cocoa:**

Crushing and reducing to powder, Cole, 181.
Compound for making, Nicoll, 922.
Crushing and reducing to powder, Cole, 2456.
Cockle-stove for roasting, Perry, 2559.
Pulping or husking cocoa fruit and beans, Patterson, 3485.

**Codes for telegraphs.** *See* "Telegraphs."

**Cod-liver oil.** *See* "Oils (animal)."

**Coffee:**

Asbestos coffee strainer, Hyatt, 478.
Hand grinding mill, Hunt (*Enterprise Manufg. Co.*), 606.
Coffee-pot for table use, Hutchinson, 756.
Compound for making, Nicoll, 922.
Mill, Clark (*Anduze*), 990.
Urn or pot for infusing, Fenby, 1090.
Cooling and drawing for drinking, Clark (*Ridgway*), 1694.
Coffee-pots, Zysel & Funkenstein, 1984.
Cockle-stove for roasting, Perry, 2559.
Self-acting coffee-mill, Gedge (*Redon & Co.*), 3406.

**Coffee—*cont.***

Pulping or husking berries, Patterson, 3485.
Propelling coffee mills, Monckton, 3509.
Beating casks to reduce bulk of, Manning & Tydeman, 3845.
Heating, in combined alarum & heating apparatus, Sharp, 4031.
Insulating & fixing handles to pots, Clark (*Tiffany & Co.*), 4034.

**Coffer-dams.** *See* "Caissons."

**Coffins:**

Antiseptic and watertight, Wirth (*Von Seeger*), 790.
Ornamenting furniture of, Kendrick, 1665.
Attaching or connecting handles to, Garrad, 1739.
Compound material for and mode of making, Brannon, 2027.
Hermetically sealing, in vaults and graves, Kendall, 3276.

**Coiling piping on drums or reels.** *See* "Pipes."

**Coiling shutters.** *See* "Shutters."

**Coins:**

Combined system of weights, measures and coinage, Peak, 648.
Decimal coin ("cent"), Peak, 648.
Silver-like alloy for making, Parkes, 2064.
Arranging assorters in boxes, tills, &c., Woodward, 2609.
Weighing, Brockelbank, 3591.

**Coke.** *See* "Charcoal."

**Collars:**

Plaiting, creasing or folding, Rath, 295.
Combined paper shirt front and collar, Young, 3153.
Fitting on, removing and fastening, Naylor, 3568.
Stamping or impressing paper, Reuter, 4137.
Stamping and registering, Brockbank, 4259.

**Collars for dogs.** *See* "Harness."

**Collars for horses.** *See* "Harness."

**Collodion:**

Preparing for cartridges, &c., Clark (*De Froideville*), 1275.

**Colour (fixing on drawings).** *See* "Pictures."

**Colour-printing:**

Show-cards and articles used for advertising, &c., James, 2167.

**Colours and colouring.** *See* "Paints."

**Columns; pilasters; pedestals; standards:**

Imitation marble, Deléon, 525.
Material for and mode of making, Brannon, 1246.
Of cast iron tubes, Hood, 1306.
Junctions of iron columns, Westwood & Baillie, 2191.
Constructing shafts, pillars and, Johnson (*Hill*), 2398.
Applying japanned metals as a pillar covering, Hughes, 2593.
Using glass in embellishing, Hartley, 3084.
Shaping and applying metal sheets, &c. to, Hyatt, 3171.
Casting, from slag run direct from furnace, Paterson, 3325.
Combining wooden strips for forming hollow, Plimpton, 3508.
Grinding and polishing, Lake (*Volk*), 3806.
Seamless columns for buildings, Newton (*Brooks*), 4244.

**Combing fibres.** *See* "Spinning (carding)."

**Combs:**

Corrugating, &c. teeth of, Dittenhoefer, 2785.
Of "nickelised" iron, Monckton, 3509.
Combining curry combs with brushing machines, Small, 4159.

**Commodes.** *See* "Waterclosets."

**Communicating apparatus.** *See* "Signals."

**Compasses (drawing).** *See* "Mathematical."

**Compasses for ships:**

Constructing, regulating and adjusting, Reynolds, 101.
Placing, &c. to avoid disturbing influences, Clark, 1232.
Solar compasses for testing marine, Gedge (*Pierson*), 2588.
Illuminating cards by electricity, Haseltine (*Cook*), 2717
Isolating galvanic battery for, Such (*Benary & others*), 3539.

**Composing machines (type).** *See* "Printing paper."

**Compositions for road making.** *See* "Roads."

**Compounds for waterproofing.** *See* "Waterproof."

**Compressed air-engines.** *See* "Air-engines."

**Compressing air.** *See* "Air pumps."

**Concentrating beer.** *See* "Brewing."

**Concentrators or boilers.** *See* "Boilers."

**Concrete:**

Asphaltum, Van Camp & Clark, 33.
Metallurgical, Lyttle, 749.
Composite, for building and other purposes, Brannon, 1246.
Compound, and applying same, Brannon, 2028.
Material, slabs or sheeting, Brannon, 2128.
Mechanism and apparatus for making, Le Mesurier, 2594.
Sheets and plates for holding concretes, Hyatt, 3171.
Metallurgical, Lyttle, 3761.
Press for compressing bricks of, Wood, 3925.

**Condensed milk.** *See* "Milk."

**Condenser carding-engines.** *See* "Spinning."

**Condensers; condensing fumes and vapours:**

Steam-engine, Haseltine (*Jones & Pauly*), 35.
Noxious vapours in rendering tallow, &c., Miller (*Brown*), 95.
Muriatic acid gas and other fumes, Newall & Bowman, 168.
Steam tubular, Monckton, 265.
In manufacturing anthracene, Lucas, 317.
Dissolvents in purifying gas, Clark (*Pelouze & Audouin*), 322.
For gas works, Whittingham (*Payne*), 348.
Gases for reducing temperature, Harrison, 383.
Steam pump, Cherry, 404.
Hydrochloric acid, Hargreaves & Robinson, 448.
In making ice, West, 451.
Or heater for buildings, Newton (*Babbitt*), 459.
Steam-engine, Baxter, 482.
Gases from blast furnaces or cupolas, Aitken, 576.
In distilling alcohol, Comte de Beaurepaire de Louvagny, 591.
Gases and liquids from bituminous substances, McBeath, 601.
Products of combustion from stoves, &c., Leoni, 629.
For distilling apparatus, Piver, 634.
Fumes evolved in melting metals, Muntz & Sharp, 667.
Steam and vapours in brewing, Barlow (*Gallaud*), 673.
Of horizontal pipes, for gas works, Somerville, 733.
Smoke & gases from tramway locomotives, Jensen (*Köhl*), 797.
Heated gas and steam, Johnson & Shaw, 847.
Steam-engine, Northcott, 944.
Cooling water for steam-engine, Hackin, 1061.
Coal gas, Hulett & Chandler, 1287.
Gases evolved in charring peat or wood, Radcke & Smyth, 1335.
Space between skins of vessels, Buckland & Simpson, 1372.
For steam-pumping engines, Cherry, 1572.
Pure tin tubes for steam, Barrett & Rawlings, 1725.
Air-engine, Nehrlich, 1873.
Valves for steam pump, Wilson (*Craig & Brescoert*), 2069.
Muriatic acid gas and other fumes, Newall, 2077.
Glass tubes for condensing acid gases, Pilkington, 2111.
Gases, in making sulphate of soda, &c., Robinson, 2145.
Foul gases from rendering fats, &c., Lake (*Firmas*), 2419.
Applying, to steam pump cylinders, Mackenzie, 2428.
Engine cylinder frame as a surface, Hunt (*Nillas*), 2491.
For use in making carburetted hydrogen gas, Clark, 2571.
For use in making coal gas, Aitken, 2587.
For use in distilling petroleum, Tweddle, 2642.
Working air-pumps of condensing engines, Bernays, 2674.
Ether vapours in preserving food, Dufrené (*Tellier*), 2778.
Ammoniacal vapours for sulphates, Henry (*Lair*), 2902.
In making sulphuric acid, De Hemptinne, 2907.
Exhaust steam, for feed-water, Russ, 2846.
Foreign matters in coal-gas making, Russ, 2847.
Stopping leaky tubes in, Ley & Shearer, 2911.
Steam and vacuum, Walker & Sturgeon, 2969.
For condensing vapours, Bycroft, 2991.
For steam and carbonic acid gas engines, Walker, 3017.
Arranging and grouping pipes in, Waller, 3017.
Valves for surface condensers, Barker, 3164.
Automatic injection valves for steam-engine, Holt, 3327.
Hydrogen and oxygen gases, Beck (*Edgerton*), 3366.
Sulphurous gas, Scott, 3417.
Cooling apparatus for hydro-thermic motors, Tommasi, 3474.
Steam to be used as feed-water, Körting, 3507.
Vapors used in extracting oil, &c., Scalfe, 3602.
Condensing steam in refrigerating apparatus, Low, 3638.
Moisture in drying lumber, &c., Woods, 3711.
For use in soap-making, &c., Edwards (*Freeland*), 3768.
Steam pump and locomotive, Holman, 3768.
Combined condenser, filter & aërator, Lake (*Lightholl*), 3853.
For locomotive steam-engines, Cook, 3890.
Cooling water for, by forward motion of trains, Cook, 3904.
Ammonia in ice-making, Benson (*Beath*), 4152.
Steam-engine, Lacordaire (*Fourlinnie*), 4168.
Blowing machinery for condensing gases, Russell, 4177.
For distilling alcoholic liquids, Brooks & Van Winkle, 4208.
Steam-engine, Clark (*Brinckerhoff*), 4221.
Applying condensing chambers to steam traps, &c., Royle, 4237.
For steam pumping engines, Binnie, 4297.
Condensed steam regulator, Wise (*Coignet*), 4323.
Steam, vapours, smoke, acids and fumes, Speir & Mather, 4364.
For steam pumping engines, Saxby, 4436.

**Condensing beer.** *See* "Brewing."

**Condensing eggs.** *See* "Preserving food."

**Confectionary:**
Lozenges or troches, Kirby, 1051.
Freezing or producing ice-creams, Harrison, 1244.
Pontefract pipes or sticks, Voile, 1783.
Boiling sugar by steam for hard, Hartley, 1888.
Coating jujubes and boiled sugar goods, Hawker, 2135.
Icing creams and other, Mort (*Nicolle & Mort*), 2763.
Compound for pastry in lieu of butter or lard, Reid, 3010.
Measuring ice creams, Haseltine (*Richards*), 3022.
Pastry, &c. from corn not reduced to flour, Sézille, 3309.
Coating jujubes, gum and boiled sugar goods, Hawker, 4371.
Acidulated drops, chocolate creams, &c., Hawker, 4371.

**Conservatories.** *See* "Greenhouses."

**Consuming smoke.** *See* "Smoke."

**Controlling signals.** *See* "Signals."

**Converting metals.** *See* "Smelting."

**Converting motions.** *See* "Propelling or driving."

**Conveying power.** *See* "Propelling."

**Cooking; culinary apparatus and utensils:**
Heating steaming or hot-closets, Lewis & Wood, 180.
Gas apparatus for, Gedge (*Liotard*), 242.
Furnaces for, Dearman, 397.
Stoves for economising fuel, Spartali, 513.
Combined portable utensils for, Dann (*Gervais*), 530.
Kitcheners, Sanderson & Proctor, 600.
Stove and utensils for, Freund, 607.
Combined gas apparatus for, Leoni, 629.
Fitting water heating box under range, Smith, 883.
Stove for boiling, baking and steaming, Peacock, 1065.
Economising fuel in kitcheners, Simpson, 1067.
Kitchen range, Wood, 1085.
Kitchen range, Redmayne, 1123.
Boiling pots and bails; saving fuel in, Clark (*Kidd*), 1160.
Adjustable kitchen range, Chapman, 1224.
Applying reflectors to kitchen grates, Whitworth, 1266.
Wrought iron kettles, Adames, 1316.
Kitchen range with moveable sliding grate, &c., Chalk, 1432.
Transporting field apparatus for, Gedge (*Bret*), 1579.
Utilising stoves for, Looker, 1585.
Fuel-saving appliance for kitchen ranges, Schofield, 1727.
Saucepans, tea-kettles, boilers, &c., Zysel & Funkenstein, 1984.
Saving fuel and consuming smoke in, Black & Leiper, 2013.
Liquid fuel apparatus for, Johnson (*Thorp*), 2100.
Stoves and fire-places for, Bainbridge & Pinkney, 2112.
Constructing close cooking stoves, Dobbie & Forbes, 2353.
Kitcheners and hot stoves or hot plates, Court, 2405.
Gas-stove for, Fearns & Jackson, 2481.
Fuel-saving "Victoria cooking stove," Tomkins, 2504.
Turnspit and roasting jack regulators, Mills (*Longin*), 2540.
Adapting cockle-stoves for, Perry, 2559.
Portable or pocket stove for warming or, Lefèvre, 2580.
Range with "Janus grate" for heating air, Ball, 2583.
Constructing and coating cooking stoves, Stone, 2615.
Self-generating gas stove & turnspit, Gaukroger & others, 2618.
Fitting, heating ovens and saving fuel in ranges, Pain, 2630.
Arranging air and smoke flues in ranges, Sykes, 2779.
Converting ranges from open to close, Sykes, 2779.
Applying a hollow hot hearth to fire-grates, Caton, 2792.
Stoves, ranges and utensils for, Freund, 2849.
Supplying hot air to kitchen ranges, Deguine, 2983.
Arranging boilers for use in, Heaps & Wheatley, 2986.
Compound for use in, in lieu of butter or lard, Reid, 3010.
Supplying air to ranges, Constantine & Hearson, 3088.
Arranging ovens, boilers and fire-box of ranges, Corbitt, 3283.
Gas cooking apparatus, Whelan, 3320.
Close or open kitchen ranges, Wright & Redmayne, 3466.
Utensils of "nickelised" iron, Monckton, 3509.
Preparing, cooking, smoking and preserving fish, Hönck, 3645.
By heat from water in sealed tubes, Scott & Timmis, 3686.
Using heating stoves for warming food, Jacobsohn, 3952.
Stoves for use in, Ritchie, 4043.
Petroleum cooking stove, Lotz, 4132.
By steam laid on from main pipes, Lake (*Coleman*), 4230.
Combined cooking and hot air stove, Whitehead, 4315.

**Cooling air:**
By cold producing apparatus, Harrison, 383.
In preserving food, Haseltine (*Bale*), 2352.
By compression and water, Newton (*Willans*), 4084.

**Cooling and ventilating buildings.** *See* "Ventilating."

**Cooling and ventilating carriages.** *See* "Ventilating."

**Cooling condensers, cylinders and pistons:**
Cylinders of gas-engines, Ford, 486.
Pistons of locomotive engines, Johnson (*Harmignies*), 658.
Cylinders of air and gas engines, Butterworth, 1652.
Cylinders of air-pumps, Ball, 1749.
Cylinders of air-engines, Nehrlich, 1873.
Cylinders of air-engines, Stevens (*Laubereau*), 2364.

**Cooling fabrics, &c. after drying.** *See* "Drying."

**Cooling furnaces:**
Beds of rotating puddling, Alleyne, 161.
Metallurgical, Monckton, 265.
Lining of steam, puddling and other, Horrocks, 352.
Bed plates of puddling, Newton & Newton, 677.
Bearings of fire-bars, Stephenson & Pickup, 1204.
Hearths of mechanical puddlers, Johnson (*Pernot*), 1997.
Rotatory puddling and other, Lester & Fallows, 2007.
Fire-bars of boiler and other, Smith, 2148.

**Cooling liquids.** *See* "Refrigerating."

**Coppers.** *See* "Boilers (miscellaneous)."

**Coprolites (grinding).** *See* "Grinding minerals."

**Cops (winding).** *See* "Winding."

**Copying:**
Press for letters, &c., Bonneville (*Berthier*), 15.
Presses, Kleinau (*Fourot*), 782.
Jacquard cards, Litchfield, 798.
Portable press, Lefèvre, 927.
Printing copier for telegraphs, Kingsley (*Gally*), 964.
Writings, &c. ("papyrographic process"), De Zuccato, 1078.
Pocket device for copying letters, &c., Geyler, 1111.
Public records, deeds, &c. for indexing, Dillon, 1935.
Presses, Brookes (*Farjon*), 2667.
Forming stationery cabinets with means for, Guy & Co., 2806.
Writings, &c. ("papyrographic process"), De Zuccato, 3150.
Combined seat and copying press, Tongue (*Betting*), 3540.
Manifold writing apparatus, Hosking, 4032.
Ink-pencil for, Petit, 4090.
Pencil, in lieu of ink, Jensen (*Jacobsen & Jacobsen*), 4473.

**Cordage.** *See* "Ropes."

**Cordials (medicinal).** *See* "Medicines."

**Cords.** *See* "Trimmings."

**Cork; corks:**
Cutting, paring and shaping, Gilbee (*Boëthius*), 354.
Cutting, for stoppering bottles, &c., Thornton, 577.
Branding and counting, Mitchell, 929.
Packing for stuffing-boxes, &c., Testud de Beauregard, 1069.
Cutting corks and cork bungs, Martin, 1155.
Grinding, for kamptulicon and linoleum, Anduze, 1226.
Using "cork soot" for heat non-conductors, Peacock, 2833.
Feeding and cutting corks, bungs, shives, &c., Anderson, 2866.
Applying cork in making and lining muffs, Ritchie, 3195.
Applying, to muffs, foot-warmers, slippers, &c., Ritchie, 3977.

**Corking bottles.** *See* "Bottle stoppers."

**Corkscrews:**
Lever, Delavigne, 56.
Combined railway key, turn screw, knife, pen and, Wigg, 2578.
Lever, Burgess & Fenton, 3004.

**Corn feeders for poultry, &c.** *See* "Troughs."

**Corn mills.** *See* "Grinding corn."

**Cornets.** *See* "Musical instruments."

**Corpses:**
Employing ethyl and methyl in preserving, Naphegyi, 834.
Employing boracic acid in embalming, Lindemann, 1753.

**Corrosion (preventing).** *See* "Oxidation."

**Corrosive liquids:**
Siphon arrangement for supplying or discharging, Peters & Donald, 1207.
Pumps for, Suffield, 1256.

**Corsets.** *See* "Stays."

**Corves or waggons.** *See* "Carriages."

**Cosmetics:**
Using kaolin in making, Brandon (*Lavandier*), 3161.

Costumes (changing character). *See* "Character, &c."
Costumes (swimming). *See* "Swimming."
Cots and bedsteads. *See* "Furniture."
Cotton gins. *See* "Spinning (batting)."
Cotton spinning. *See* "Spinning (twisting, &c.)."
Counters for shops:
Applying japanned metals as a covering for, Hughes, 2593.
Counting. *See* "Registering."
Coupling driving belts. *See* "Bands."
Coupling or joining pipes. *See* "Pipes."
Coupling railway carriages. *See* "Railway carriages."
Coupling signal wires. *See* "Signals."
Couplings for shafts. *See* "Shafts."
Coverings for furniture. *See* "Upholstery."
Coverings for the head. *See* "Hats."
Coverings or awnings. *See* "Awnings."
Covers for dishes. *See* "Dishes."
Cowls for chimneys. *See* "Flues."
Cowls for ventilating. *See* "Ventilating."
Crabs. *See* "Hoists."
Cramps:
Flooring, Cheadle, 2966.
Cranes. *See* "Hoists."
Cranks:
Repairing the "sweep" of loom crank shafts, Haggas, 2442.
Testing cranked shafts, Handyside & Alley, 2455.
Hubs for, Brehmer, 2665.
Traversing crank arrangements for engines, Hardy, 2902.
Extension, for treadle machines, Wright, 2903.
Hydraulic presses for forging, Whitworth, 3064.
Finishing crank bosses of wheels, Reid & Webster, 4000.
Substitute for, in steam-engines, Péne, 4047.
Removing dead centres in crank shafts, Davison, 4164.
Arranging, for working syrup pumps, Bruce, 4180.
For tricycles, Walsh, 4351.
Crape; craping:
Of spun silk, Kay & Richardson, 387.
Craping hair for chignons, &c., Clarke & Donisthorpe, 1704.
Craping hair and other fibrous materials, Jowett, 2487.
Craping wool, hair, &c. for hair pads, &c., Thompson, 3936.
Crates:
Grippers or tongs for lifting, &c., Stevens (*Reid*), 1014.
For holding and carrying bottles, Brett & Williams, 3115.
Cravats. *See* "Neckties."
Crayons. *See* "Pencils."
Cream and milk. *See* "Milk."
Creels and skewers. *See* "Spinning."
Crimping. *See* "Goffering."
Crinolines. *See* "Dresses."
Crisping. *See* "Goffering."
Crockery ware. *See* "Earthenware."
Crops (binding into sheaves). *See* "Reaping."
Crops (drying cut). *See* "Drying."
Crops (protecting from birds). *See* "Scaring."
Croquet balls. *See* "Games."
Crucibles and melting pots:
Moulding asbestos for, Hyatt, 478.
Cruet-stands:
Of "nickelised" iron, Monckton, 3509.
Crushing minerals, &c. *See* "Grinding."
Crushing oats, &c. *See* "Grinding corn."
Crushing salt into pieces. *See* "Salt."
Crushing sugar. *See* "Sugar."
Cryptogamic growths (destroying). *See* "Plants."
Crystal:
Potash for use in making, Hughes (*Daudenart & Verbert*), 213.
Crystallising sugar. *See* "Sugar."
Crystals:
Depositing, by ozonisation, Monckton, 265.
Cucumbers (slicing). *See* "Preserving food."
Cuffs:
Magnetising, Lyon, 1954.
Of muslin, &c., Hirschhorn (*Aub*), 3832.
Culinary utensils. *See* "Cooking."
Cultivating land. *See* "Tilling."
Cultivating oysters. *See* "Oysters."
Cupola furnaces. *See* "Furnaces (metallurgical)."
Cupralum. *See* "Disinfecting."
Curbing. *See* "Roadmaking."
Curbing horses. *See* "Harness."
Curing leather cloth. *See* "Leather."
Curing or drying peat. *See* "Peat."
Curl papers. *See* "Hair-dressing."
Current-meters:
Using liquid-meters as, Muller, 4228.
Curry combs. *See* "Combs."
Curtains. *See* "Upholstery."
Cushions and pillows. *See* "Upholstery."
Cutlery (grinding). *See* "Grinding & sharpening."
Cutlery (table). *See* "Knives."
Cutting, planing and shearing metals:
And feeding wire for staples, Morgan-Brown (*Kenistos*), 5.
Screw lengths, Tallcott (*Post*), 148.
Screw blanks, Nugent & Fanning, 191.
Feeding "screeds" or strips in cutting nails, Wormald, 337.
Pipes and bars, Clark (*Allis*), 350.
Shears or machines for, Newton (*Stevens*), 418.
Tongs for cutting pipes, Benson (*Ferguson*), 428.
Device for producing intermittent motion in, Dunn, 565.
Tools for, Kennedy, 860.
Tool holders used in, Bonneville (*Baville*), 1231.
Wire in boot-making, &c., Lake (*Mundell & Partridge*), 1232.
Nails, Lake (*Haddock*), 1332.
Rivets off flush in rivetting machines, Purdie, 1427.
Wire into lengths for umbrellas, Fox, 1484.
Toothed wheels and racks, Peer, 1497.
Machine and tools for shaping and, Crow, 1544.
Feed cutting motion of planing machines, Crow, 1546.
For oil cans and other cone shaped vessels, Radcliffe, 1553.
Plates for boilers, tanks, bridges, &c., Dawes & Holt, 1726.
Wire tubing for ferrules, Lothrop, 1780.
Oiling slides of planing machines, Oclee & Woodcock, 1966.
Wire or rods of metal, Lord, 2118.
Old railway rails and rail ends, Dyson & Ward, 2183.
Heddle clasps, Haseltine (*Kendrick Loom Harness Co.*), 2291.
Hooks for threading needles, Fobes (*Wells*), 2561.
Or stamping out type, Nall & others, 2627.
And grooving key-beds, Atock, 2716.
Barbs in fish hooks, Newton (*Court & others*), 2729.
Links in making chains, &c., Gray & Taylor (*Selden*), 2772.
Slots in screw bolts, Browne (*Guyer*), 2801.
And shaping links for chains or cables, Handyside, 2837.
And forming boot nails, Morgan-Brown (*Richardson*), 2904.
And finishing the ends of bolts and studs, Nelson, 2912.
Tool for cutting and shaping buttons, &c., Harrison, 3063.
Tools for planing and shaping in both directions, Butler, 3112.

**Cutting, planing and shearing metals—*cont.***

Feeding and cutting nails from strips, McDowall, 3203.
Oiling slides of planing machines, Woodcock, 3423.
Planing and drilling machine, Campbell & others, 3436.
Feeding strips without turning, for nails, Summers, 3630.
Guards for revolving cutters, Squire & McComb, 3646.
Budds or sprigs for boots and shoes, Purdie, 3689.
Planing, &c. copper singe plates, Sumner & Waldenström, 3812.
Shaping or planing screw nut sides, Weild & Cochrane, 4055.
Nails, budds, sprigs and rivets, Purdie, 4067.
Shearing horse nails from soft steel, Huggett, 4161.
Nails and tacks, Comery, 4185.
Slotting or planing bolts and nuts, Hartnell, 4276.
Raising, &c. cutting tool in tube-cutting machines, Lee, 4280.
Arranging machines for sawing or, Craven & Bollé, 4335.
Tools and holders for planing and slotting, Lingard, 4165.

**Cutting, sawing and planing wood:**

Staves and heads for casks, Woodley & Anderson, 102.
Segments for wooden rollers, Johnson (*Ireland*), 215.
Planing, grooving and tenoning, Jensen (*Gibson & Sons*), 273.
Circular saw bench, Stanley, 411.
Device for producing intermittent motion in, Dunn, 503.
Working revolving tools for carving, Egerton, 617.
Shaping panels, mouldings, &c., Robinson & Smith, 656.
Motor for operating chisel, Robinson, 717.
Blocks for road making, Light, 724.
Endless band machine for, Sanson, 1023.
Sliding cover for bearings, &c. of saw frames, Meadows, 1100.
Mortising machine, Stanwix, 1419.
Toothed-wheel patterns, Peer, 1497.
Planes, Hunt (*Baldwin*), 1716.
Scale board for boxes, &c., Salmon & Nickols, 1755.
Setting saw frame guides at angles, Hall & Hall, 1879.
Reciprocating saw and feed-motion, Kirkland & Anderson, 1977.
Cast steel joiners' tools, Johnson, 2094.
Constructing and arranging knife machines, Glover, 2638.
Marking plates, for cutting irregular forms, Jones, 2669.
Shaping, planing and rabbeting, Jones, 2669.
Reciprocating knife & feed-motion, Newcomb & Newcomb, 2857.
Machine or motive-power for working saw-mills, White, 2892.
Mortising machines, Green & Hirst, 3234.
Match splints, Mills (*Nielsen*), 3355.
Guiding & operating tools for moulding and, Thompson, 3368.
Method of developing mouldings, &c. in, Thompson, 3368.
Oiling slides of planing machines, Woodcock, 3423.
Convertible boot cleaning machine for, Townsend, 3456.
And grooving strips for roofs, &c., Plimpton, 3508.
Propelling machines for, Monckton, 3509.
Radial mortising machine, Lake (*Jobbins & Warth*), 3582.
Elliptic cutters for tenoning and flat cutting, Lloyd, 3622.
Guards for revolving cutters, Squire & McComb, 3646.
Cask staves on both sides at same time, Slater, 3714.
Or splitting wood for domestic purposes, Krueger, 3765.
Mortising, cutting & wood working machines, Ventress, 3820.
Positive drag motion for circular saw bench, Hilton, 3873.
Tubular or hollow articles, &c., Johnson (*Goulas & Co.*), 3893.
Horizontal reciprocating saw slides, Robinson & Smith, 3913.
Regulating and stopping saw frames, Taffinder & others, 3971.
Cubes or blocks for road-making, &c., Light, 4091.
Driving circular saws, Simpson (*Simpson*), 4145.
Steadying motion of revolving cutters, Haigh, 4210.
Circular saw benches with two feeders, &c., Haigh, 4210.
Staves and heads for casks, Philippe & Pinet, 4243.

**Cutting and dressing stone:**

Using corundum, emery, &c. fixed in holders, Thompson, 275.
Revolving table and tool for, Hindley, 526.
Millstones, Sears (*Chisholm Bros.*), 846.
Tool with carbon points for, Lake (*Gear*), 999.
Millstones, Haseltine (*Larer & Griscom*), 1129.
By percussive machinery, Warsop & Hill, 1181.
Applying intense heat in, Werdermann, 1438.
Machine for, Jordan, 1494.
Driving, supporting and lowering saw frames, Cox, 1696.
Nibs or cutters for saws and dressing tools, Macintosh, 1714.
Percussive engine for, Darlington, 1724.
Millstones, Haseltine (*Dean & others*), 2001.
Hardening substances for making cutters, Macintosh, 2945.
Guiding & operating tools for moulding, &c., Thompson, 3368.
Method of developing mouldings, &c. in, Thompson, 3368.
Guards for revolving cutters, Squire & McComb, 3646.

**Cutting button holes.** *See* "Button holes."

**Cutting clay and other like plastic substances:**

Into bricks, blocks or slabs, Topping & Gregory, 621.
Into bricks by wires, Pinfold, 743.

**Cutting cloth, linen and other fabrics:**

Guillotine machine for, Somerville & Crombie, 365.
And separating seams of woollen rags, clothing, &c., Smith, 386.
Stamping out press, Waterman, 996.
Endless band machine for, Sanson, 1023.
Or "overboard" machine for, Lake (*Jobbins & Warth*), 3582.

**Cutting coal.** *See* "Mining."

**Cutting cork.** *See* "Cork."

**Cutting down trees.** *See* "Plants and trees."

**Cutting drains.** *See* "Drains."

**Cutting files.** *See* "Files."

**Cutting glass.** *See* "Glass."

**Cutting hedges.** *See* "Plants and trees."

**Cutting india-rubber.** *See* "India-rubber."

**Cutting leather.** *See* "Leather."

**Cutting oil or other seed cakes.** *See* "Oil-cake."

**Cutting or mincing meat.** *See* "Mincing."

**Cutting or pulping roots.** *See* "Root pulpers."

**Cutting paper and pasteboard:**

Into sheets after printing, Nicholls, 41.
Knives and whetting rollers for, Gilbee (*Boëthius*), 354.
Guillotine machine for, Somerville & Crombie, 365.
Arrangement of self-adjusting cripper-bars, Leber, 545.
In rotary web printing machines, Wilson, 587.
In printing machines, Conisbee & Smale, 739.
Into strips for paper-twine, &c., Lake (*Wortendyke*), 1068.
Back edges of sheets for binding, Straker, 1744.
Card and straw-boards for boxes, &c., Salmon & Nickols, 1755.
And kerfing pasteboard for boxes, Mills (*Heyl*), 1931.
Webs into sheets before and after printing, Nicholls, 2005.
Parallel reciprocating machine, Browne (*Truchot*), 2140.
During operation of printing, Salmon & Wood, 2597.
Bevilling the edges of cardboard, Lenègre (*Durr*), 2769.
Sheets from rolls in printing machines, Bond, 2775.
By a diagonal motion under paper, Bickerton (*Mauger*), 2963.
Or trimming wall papers, Burling (*Todd*), 3818.
In cigarette making machines, Clark (*Susini-Ruiseco*), 3852.

**Cutting peat.** *See* "Peat."

**Cutting pile fabrics:**

Velvets, &c. in process of weaving, Brakell, 313.
Velvets, &c. woven as double cloths, Farran, 899.
Woven face to face, Shaw & others, 1462.
Cutting apparatus for two ply looms, Heald, 1864.
Fancy designs on velvets, &c., Henderson (*Aubert*), 1902.
Woven face to face, Bélicard, 2014.
Velvets, &c. in process of weaving, Brakell, 2599.
Preparing velvets, &c. for being cut, Watson, 3671.
To produce designs in relief, Gedge (*Chiffray*), 3786.

**Cutting salt.** *See* "Salt."

**Cutting screws and screw-threads.** *See* "Screws."

**Cutting tobacco.** *See* "Tobacco."

**Cutting trenches.** *See* "Trenches."

**Cuttling or folding woven fabrics.** *See* "Finishing."

**Cyanogen:**

Extracting compounds of, from spent oxide, Valentin, 3908.

**Cylinders and rollers (miscellaneous):**

Constructing air break, Steel & McInnes, 74.
For washing wool, Holden & Holden, 114.
Fabric for covering, in dyeing, Mewburn (*Chalumet*), 156.
For finishing woollen cloths, Abel (*Varinet & Enoult*), 184.
For drying tissues, felts, threads, &c., Moison, 196.
Constructing revolving granulator, Wood, 201.
Wooden rollers for spinning, &c., Johnson (*Ireland*), 215.
Rollers for plaiting, creasing or folding fabrics, Rath, 295.
For hydraulic mangles, Gebauer, 321.
Carding-engine, Leigh, 398.
Carding-engine, Johnson (*Plantrou*), 420.
For squeezing liquid from spent tan, hops, &c., Hall, 468.
Cooling gas-engine, Ford, 486.
Constructing, to form bed-plates, Kayser (*Schultz*), 488.
For caloric engines, Johnson (*Hirsch*), 594.
Forging, rolling and casting, Allen, 614.
Corrugating metallic, Lafferty & Lafferty, 754.
Covering with fireproof wood, Muratori, 931.
For ore-crushers, Krom, 1068.
Of ligneous tissues, Murrow, 1063.
For use in cutting paper, Lake (*Wortendyke*), 1068.
Casting and annealing glass, Chedgey, 1075.
Making true, rolls of plate and sheet mills, Bury & Muir, 1154.
Break and air pump, Bonneville (*Marchand*), 1170.
Mounting card fillets on carding, Walton, 1376.

Cylinders and rollers (miscellaneous)—*cont.*

For pneumatic breaks, Westinghouse, 1540.
For drying yarns and fabrics, Lancaster & Dollander, 1569.
For atmospheric hammers, Manson, 1603.
For percussive machinery, Clark (*Chenot*), 1676.
Of percussive engines, Darlington, 1724.
Of percussive engines, Jordan, 1767.
For hydraulic presses, Davies (*Smith*), 1883.
For rock drills, Sturgeon & White, 2085.
Rollers for revolving shutters, Williams, 2133.
Drawing rollers used in spinning frames, Combe, 2348.
For thermodynamic or "fuel engines," Jenkin, 2441.
Rollers for bending timber for arches, Rothwell, 2464.
Rollers for feeding warp in looms, Greenwood & Balme, 2469.
Grooved fixed spinning machine, Bonneville (*Martin*), 2536.
For porcelain paste pulverisers, Alsing (*Edwards*), 2537.
Constructing covers of air and gas engine, Perch & Higgs, 2546.
For air, gas and water engines, Higginson, 2552.
Under-couch rollers for paper-making machines, Craig, 2602.
Coating cloth rollers of beetling machines, Smith, 2746.
Arranging ports in trunnions of, Scott, (*Haag*), 2758.
For rock drills, Hosking & Blakewell, 2760.
To act as turbines for raising water, Lüdeke, 2850.
Lubricating hammer and stamper, Browett, 2887.
For rolling bars for horse-shoes, &c., Miller & Raine, 2916.
For high pressure condensing engines, Waller, 3017.
For scroll disc rotary steam pumps, Cooper, 3082.
For twisting, compressing and rolling tobacco, Andrew, 3310.
For tin or terne plate cleaning, Gilbertson & others, 3312.
Rotary marine and other air-engine, Allix, 3315.
For compressing air, Benson (*Cope & Maxwell*), 3361.
For making and condensing gases, Beck (*Edgerton*), 3366.
Casting chilled rolls, Robbins & others, 3406.
Rollers for welding iron and steel tubes, Huggins, 3462.
Fluted, for use in making "artificial leather," Meech, 3484.
Arranging in retort drawing machines, Foulis, 3487.
For preparing malt, Wirth (*Stenger & Walther*), 3524.
Arranging ports in compressed air pump, Hamilton, 3549.
Compressed air and water engine, Wilks, 3621.
For rolling mills, Brown, 3640.
Fluting rollers for spinning frames, Squire & McComb, 3646.
For direct-acting engines and pumps, Parker & Weston, 3658.
Covering paper bronzing machine, Leeming & others, 3704.
Casting chilled rolls, Taylor & Farley, 3760.
For polishing stone and metal objects, Lake (*Volk*), 3806.
For fibre disintegrators, Clark (*Chamas & others*), 3877.
For hydraulic presses, Dack, 3922.
Rollers with cutters for making gunpowder, Haycraft, 4009.
Elastic, for graining, marking and ornamenting, Jones, 4038.
Rollers of ironing machines, Newton (*Wiles & Adams*), 4062.
Revolving, for tea and other drying machines, Pridham, 4133.
Drums for use in decorticating grain, &c., Buchholz, 4170.
Detachable, for pumps, Lake (*Blake*), 4388.
For use in casting metals under pressure, Mackintire, 4469.
Rolls for rolling sheet metal for casks, Haycraft, 4478.

Cylinders and rollers (printing):

Fabric for covering, Mewburn (*Chalumet*), 156.
Building up, in rotary web machines, Wilson, 587.
With extending or contracting surface, Payne, 996.
For use in colouring blocks for printing fabrics, McKay, 1369.
Covering inking rollers, Mann & others, 1640.
Wharfedale and other press, Dawson & Dawson, 1845.
Casting calico printers' rollers, Torr, 1924.
Arranging, combining, covering and gearing, Nicholls, 2005.
Measuring rollers and rotary type cylinders, Bond, 2775.
Inking roller composition, Morgan-Brown (*Osgood*), 2875.
For continuous web machines, Newton (*Hoe*), 3434.
Arranging, for letter-press printing, Davis & Parsons, 3887.

Cylinders (steam-engine):

Combined high & low pressure, Haseltine (*Jones & Pauly*), 35.
For rotary engines, Bousfield (*Manley*), 58.
Cylinder-heads, Hooker, 203.
Heating the jackets of, Brook & Wilson, 427.
Vertical, Hedges, 463.
Constructing, to form bed-plates, &c., Kayser (*Schultz*), 488.
Combined steam and caloric engine, Marchant, 509.
Mastic for coating, Craps & Derihon (*Reintjens*), 529.
Rotary, Haseltine (*McGhee & Risher*), 807.
For steam pumps, Pickering, 932.
For superheating steam, Harper, 951.
Lubricating, Lake (*Passett & Hill*), 1389.
Lubricating, Jones, 1429.
Packing rotary engine, Newton (*Gallahue*), 1796.
Arranging "Asolena engine," Soul (*Hartog & Co.*), 2037.
Constructing concentrically, Sturgeon & White, 2085.
Packing for cover joints of, Hammond & Morgan, 2130.
Applying, for working pneumatic breaks, Harding, 2381.
Grouping marine steam-engine, Hunt (*Nillus*), 2491.
Constructing, with annular exhaust, Abel (*Roberts*), 2516.
Constructing covers of, Perch & Higgs, 2546.
Pear shaped, for engines and pumps, Higginson, 2552.
Arranging ports in trunnions of, Scott (*Haag*), 2758.
Lubricating, Lumb & Bottomley, 2781.

Cylinders (steam-engine)—*cont.*

Steam passages of marine-engine, Spartali, 2900.
End covers for rotary engine, Sudlow, 2963.
For high pressure condensing engines, Waller, 3017.
Using mica, &c. as a cover packing, Talling & Seccombe, 3048.
Hydraulic presses for forging linings of, Whitworth, 3064.
For scroll disc rotary engines, Cooper, 3082.
Lining and jacketting engine, Holt, 3227.
Rotary marine and other engine, Allix, 3315.
For pumping engines, Benson (*Cope & Maxwell*), 3361.
Direct-acting engine, Browne, 3373.
Arranging, in compound marine engines, Rankin, 3383.
Ports for engine and pump, Craig & others, 3494.
Arranging ports in steam pump, Hamilton, 3549.
Valve and port arrangement for, Wilks, 3621.
For direct-acting engines and pumps, Parker & Weston, 3658.
Lining steam pump, Hooker & Browne, 3661.
Arranging portable engine, Hughes, 3787.
Arranging reciprocating engine, Brotherhood, 3883.
Converting locomotive, into air pumps, Cook, 3890.
Arranging compound engine, Shawcross (*Shawcross*), 3911.
Casting portable and other engine, Hughes, 3976.
Maintaining at a high temperature, by hot air, Pène, 4047.
Arranging ports in engine, Dugard, 4126.
Detachable, for engines, Lake (*Blake*), 4388.

Cymbals. *See* "Musical instruments."


## D.


Dampers. *See* "Air-supplying."

Damping paper for printing. *See* "Printing."

Damping stamps. *See* "Stamps."

Damping warps in looms. *See* "Weaving."

Darning. *See* "Sewing."

Date indicators. *See* "Calendars."

Davits. *See* "Ships' boats."

Decanting liquids. *See* "Bottles."

Decoctions and infusions. *See* "Extracts."

Decorating or ornamenting. *See* "Ornamenting."

Decorticating grain and seeds. *See* "Hulling."

Deed boxes. *See* "Boxes."

Deepening water-courses. *See* "Dredging."

Defecating sewage, &c. *See* "Filters."

Delivering tickets. *See* "Tickets."

Demijohns. *See* "Bottles."

Dentistry:

Foil for filling teeth, Blake, 92.
Stopping teeth, Touaillon (*Gaillard*), 519.
Adjusting operating chairs by fluid pressure, Oclee, 925.
Adjusting chair for dentists' use, Golden, 2326.
Dental engine or drill, Bousfield (*Stow*), 2696.
Artificial palates or obturators, Johnson (*Peyer*), 4123.
Lighting apparatus for dental operations, Stewart, 4173.

Deodorants; deodorising:

And perfuming rooms, Abrahams, 237.
Chamber urinals and domestic utensils, Synge, 254.
And fumigating rooms, Kinder & Kinder, 256.
Night soil, Scott & Spence, 283.
Waterclosets, &c., Brown & White, 1061.
Water-closets, Bonneville (*Burns & others*), 1271.
Agents, for fecal and impure substances, Hart, 1306.
Sewage, Lake (*Hesse*), 1415.
Agents or compounds ("Ferralum or Cupralum"), Bond, 1518.
Deodoriser for sewage, night-soil, &c., Kidd, 1764.
A dry closet powder, Hughan, 1959.
Drain and sewer gases, Johnson, 2020.
Distributing material in dry-closets, Fisher, 2098.
Cinder-sifter for use in ash-closets, Willett & others, 2139.
Drain and sewer gases, Dixon, 2409.
Sludge in clarifying sewage water, Lyttle, 2446.
Preparing peat charcoal for, Monckton, 2581.
The air of sick rooms, hospitals, &c., Ball, 2583.
Powder for dry-closets, Manning, 2676.

**Deodorants; deodorising—*cont.***
Cinder sifter for dry-closets and commodes, Bond, 3706.
Dry earth, ash and other closets, Garnett & Leyland, 2909.
Deodoriser for sewage, night-soil, &c., Kidd, 3199.
Urinals, waterclosets, &c., Jones, 3279.
Human excreta for manure, Bonnefin, 3384.
Gases or vapours from cement kilns, &c., Gard, 3502.
Regulating deodorants to dry closets, Walter, 3510.
The air in rooms, &c., Wilson, 3681.
Liquids & powders for closets, drains, urinals, &c., Bond, 3799.
Sewer gases by fire or heat, Harding, 3859.
Deodorising artificial fuel, Barker, 3870.
Compound for deodorising impure water, &c., Goodall, 4158.
Town refuse and solid fæces, Scott, 4305.
Obtaining a deodoriser for fæcal matters, Scott, 4305.
Urine in portable closets or commodes, Martin, 4480.

**Depilating hides and skins.** *See* "Leather."

**Depositing metals.** *See* "Coating metals."

**Desiccating.** *See* "Drying."

**Desilvering lead.** *See* "Smelting."

**Desks.** *See* "Furniture."

**Despatch bags.** *See* "Bags."

**Despatch belts.** *See* "Belts."

**Despatch cases.** *See* "Boxes."

**Destroying insects.** *See* "Insects."

**Detectors or tell-tales.** *See* "Tell-tales."

**Detergents.** *See* "Soap."

**Dextrine:**
Producing "Sirop de Froment" or, Manbré, 3639.
Solid "dextrin-maltose," O'Sullivan & Valentin, 3909.

**Dials for timekeepers.** *See* "Clocks."

**Dials (miners').** *See* "Mathematical instruments."

**Dies:**
Making steel medallions and, Noad, 1422.
For making bolts, spikes and rivets, Marsden, 1437.
For forming lead, tin and composition pipes, Pitchford, 1468.
For forming spikes already headed, Lake (*Tay*), 2075.
For forming links, rings, &c., Gray & Taylor (*Selden*), 2772.
Curved dies for rotary embossing presses, Gowans, 2941.
For use in making boots, Lake (*Ballou & Copeland*), 3886.
For cutting nails, budds, sprigs and rivets, Purdie, 4067.
For stamping or pressing designs on metals, Smily, 4202.
For forming cards of carding-engines, Crosland, 4317.

**Digging roots:**
Potatoes, &c. Bucknall, 362.
Topping, raising and collecting potatoes, Corbett, 2282.
Hanson potato diggers, Wallace, 2322.
Combined potato-digger, riddle and reaper, Christie, 3385.
Potato diggers, Aspinwall, 3655.

**Digitoriums.** *See* "Musical instruments."

**Dinas or fire-bricks.** *See* "Bricks."

**Discharging cargo.** *See* "Ships' cargoes."

**Disengaging ships' boats.** *See* "Ships' boats."

**Dishes and plates; dish covers; racks:**
Warming and cooling; plate racks, Liddicott, 970.
Racks or frames for supporting joints, &c. on, White, 2919.
Hot-water plates, &c. of "nickelised" iron, Monckton, 3509.
Cutting out wooden trenchers, Johnson (*Goulas & Co.*), 3893.

**Disinfectants; disinfecting:**
Rooms, by evaporating; camphor, &c., Abrahams, 227.
Hospitals, rooms, &c., Monckton, 265.
Ozonising disinfectants, Monckton, 265.
Packing chloride of lime, Lake (*Bush*), 799.
Waterclosets, Howard, 991.
Waterclosets, &c., Brown & White, 1061.
Waterclosets, Bonneville (*Burns & others*), 1271.
Agents, for fecal and impure substances, Hart, 1398.
Agents or compounds ("Ferralum or Cupralum"), Bond, 1510.
Sanitary powders for treating sewage, &c., Hughan, 1959.
Drain and sewer gases, Johnson, 2020.
Drain and sewer gases, Dixon, 2409.

**Disinfectants; disinfecting—*cont.***
Waterclosets, urinals and similar purposes, Jones, 2466.
The air of sick rooms, hospitals, &c., Ball, 2583.
Powder for dry-closets, Manning, 2676.
Vapours in refining oils and fats, Hollands & Ilbery, 2804.
Portable hot-water medicated apparatus, Strugnell, 2820.
Preparing "disinfecting candles," Wirth (*Reissig*), 2884.
Spray generators and injector for, Duncombe, 3138.
Urinals, waterclosets, &c., Jones, 3279.
Ash distributor for water and dry closets, Bond, 3330.
Human excreta and urine for manure, Bonnefin, 3384.
Disinfecting paper for use in closets, &c., Gutensohn, 3650.
The air in rooms, &c., Wilson, 3681.
Liquids & powders for closets, drains, urinals, &c., Bond, 3799.
Sewer gases by fire or heat, Harding, 3859.
From residuum in making gas, Johnson (*Moreau*), 4387.
Black powder or disinfectant, Knab, 4421.
Urine in portable closets or commodes, Martin, 4480.

**Disintegrating land.** *See* "Tilling."

**Disintegrating rags and textile waste.** *See* "Rags."

**Disintegrators; disintegrating:**
For making peat-fuel, Dudgeon, 28.
For partially fluid or semi-solid substances, Clark, 1453.
Plants and grass for fibres, Hugon (*Berthet & Labérie*), 2068.
Fibrous substances for paper, &c., Haseltine (*Laflin*), 2294.
Pulping or triturating peat, Monckton, 2581.
Fibres for paper and fabrics, Newton (*Mitscherlich*), 2939.
Cylinder and block for, fibre, Clark (*Chamas & others*), 3877.
Fibres for paper-pulp, Clark (*Chamas & others*), 3877.

**Displaying photographs.** *See* "Pictures."

**Distance indicators.** *See* "Registering."

**Distance of objects (measuring).** *See* "Telemeters."

**Distilling and rectifying alcoholic liquids:**
Kiln or chamber for drying grains, Perry, 55.
Welding copper still shells, Benson (*Rehbein & others*), 405.
Obtaining further extract from grains or malt in, Garton, 508.
Combining "charger and heater to save fuel," Mc Feely, 522.
Purifying, Comte de Beaurepaire de Louvagny, 591.
Vessel to obtain infusions or decoctions, Hutchinson, 756.
Indicating density of alcohol, Johnson (*Redier & Co.*), 1587.
Method and apparatus for, and saving fuel in, Piver, 1607.
Constructing glass vats, Hartley, 1768.
A "pneumatic system" of malting, Barlow (*Galland*), 1988.
Obtaining products from residua, Henry (*Faucheux*), 2483.
Cockle-stove for use in, Perry, 2559.
Collecting carbonic oxide in, for heating, &c., Hanssen, 2749.
Using "glazune" in erecting glass lined vats, Hartley, 3084.
Kiln or chamber for drying grains, Perry, 3598.
Low temperature pulsating still, Brooks & Van Winkle, 4200.
Method of heating in, Comte de Beaurepaire de Louvagny, 4450.

**Distilling gas.** *See* "Gas (making)."

**Distilling (miscellaneous):**
Jet apparatus for, Körting, 3505.
Under heat and pressure, Edwards (*Freeland*), 3766.

**Distilling oils:**
Combining steam-boiler with oven and furnace, Dudgeon, 20.
Retorts and apparatus for, McBeath, 601.
Essential oils or perfumes, Piver, 634.
Process and retorts for distilling shale oil, Bell, 1824.
Essential oils and perfumes, Harris (*Walton & others*), 2053.
In conjunction with peat charcoal, Monckton, 2581.
Petroleum at a low temperature, Tweddle, 2642.
From ores, &c. and retorts therefor, Ireland, 4215.

**Distilling tar.** *See* "Tar."

**Distilling water.** *See* "Filtering."

**Distributing manure.** *See* "Manure distributors."

**Diving apparatus:**
Speaking tubes for, Applegarth (*Denayrouse*), 2015.
Combined diving bell & rock drill, Sturgeon & White, 2085.

**Docks; floating docks; basins:**
Pontoons for floating, Clark & Standfield, 111.
Pontoons for floating, Clark & Standfield, 202.
Gates, sluices or by-pass valves for, Stoney, 882.
Constructing foundation for dock walls, Hunter, 2097.
Compound material for and constructing docks, Brannon, 2128.
Excavating clay and earth in making, Lawrence, 3180.
Mastic of asphalte for, Skinner, 3217.
Caissons and bridges for bridging entrance to, Kinipple, 3573.
Pontoon or floating dock, Halpin, 4278.

**Dog-collars.** *See* "Harness."

**Domestic controllers** *See* "Tell-tales."

**Door mats.** *See* "Mats."

**Doors; gates; door furniture:**

Locking railway carriage, Hartmann & Hartmann, 229.
Securing strong room, Chubb & Chalk, 320.
Lining furnace, Cockey & Cockey, 624.
Impervious draught slide and plinth, Agar & Agar, 631.
Attaching knobs to lock spindles, Harrington, 853.
Steam-boiler and other furnace, Martin, 880.
Gates for docks, locks and basins, Stoney, 882.
Hoist and hatchway, Haseltine (*Meaker*), 937.
Locking railway gates, Rapier, 1064.
Latch and locking bolt for gates and, Whitworth, 1095.
Asbestos packing for man-hole, Cleghorn & Paterson, 1145.
Self-locking catches for railway wagon, Heginbothom, 1194.
Working or operating railway crossing gates, Beynon, 1237.
Material or slabs for, Brannon, 1246.
Bolts or catches for, Turner, 1320.
Self-acting apparatus for closing, Threlfall, 1357.
Latch for, Wheeler, 1377.
Self-acting catch for wagon or truck, Taylor & Taylor, 1407.
Springs for, Clark (*Doremus*), 1410.
Stone pictures ("Pictoliths") for decorating, Brannon, 1472.
Locking and unlocking railway carriage, Sanders, 1522.
Preventing noise from slamming of, Baker, 1631.
Working lock gates, Westmacott, 1642.
Constructing wooden lock gates, Westmacott, 1659.
Attaching door handles to their spindles, Cox, 1702.
Fasteners for railway wagon, Leach & Leach, 1860.
Locking railway gate levers, Cooper & Campin, 1893.
Secret or invisible means of locking, Faddy, 1974.
For regulating air to boiler and other furnaces, Nimmo, 1980.
Attaching knobs to lock spindles, Harrington, 2025.
Constructing and fireproofing ships', Brannon, 2028.
For safes and strong rooms, Brannon, 2029.
For landau carriages, Gedge (*Montegut & Barou*), 2125.
Material and slabs for and making, Brannon, 2128.
Fixing knobs to lock spindles, Bailey, 2195.
Attaching knobs to lock spindles, Edwards & Wilkins, 2222.
Holding or sustaining, when open, Fletcher, 2227.
Joint for securing door knobs, Clissold, 2285.
Fixing knobs to lock spindles, Tucker, 2559.
For ventilating rooms, sick wards, &c., Ball, 2583.
Applying japanned metals as a post covering, Hughes, 2593.
Automatically closing "swing" and other, Thornton, 2608.
Opening & closing bulkhead, &c. doors in ships, Coxhead, 2655.
Transferring decorative paintings to, Magny, 2723.
Employing half doors in broughams, &c., Brown, 2996.
For gas retorts, Rowbottom, 3095.
Attaching handles and knobs to spindles, Ayton, 3168.
And door panels; scuttle, flap and trap doors, Hyatt, 3171.
Attaching knobs or handles to, Harland, 3303.
Knobs and spindles for, Brewer (*Carpenter*), 3357.
Automatic safety fastener for, Scourfield, 3363.
Automatically locking, &c. carriage doors, Matthews, 3364.
Mounting and working gates, Aldridge, 3659.
Controlling the position of, Clark (*Lartigue*), 3771.
Sockets for fixing and preserving gate posts, Hale, 4144.
Self-acting fastener for carriage doors, Davenport, 4211.
Locking and unlocking railway carriage, Hart, 4345.
Opening and closing, Rammell, 4380.
For strong rooms, Chubb & others, 4393.

**Doubling fibres.** *See* "Spinning."

**Draft regulators or dampers.** *See* "Air-supplying."

**Drains and sewers:**

Draining peat bogs, Dudgeon, 22.
Pipes or tiles, Woodward, 128.
Fan for ventilating, Van de Woerd, 245.
Deodorising and filtering traps for, Synge, 254.
Filtering system for house and street drainage, Synge, 255.
Recovering metals held in solution in, Monckton, 265.
Forming and ornamenting soil pipes, Harrop, 485.
Process and composition for making drain pipes, Deléon, 525.
Stench traps, Wilson, 534.
Cutting, Clark (*Challeton*), 781.
Flushing, Pout, 1027.
Automatic apparatus for flushing, Birch, 1157.
Preventing back flow of gas or liquids in, Matthews, 1973.
Charcoal ventilator for, Johnson, 2020.
Making, along the banks of or across rivers, Hunter, 2097.
Material for and mode of making, Brannon, 2128.
Draining borings by air pressure, Murphy, 2267.
Stench traps and sealing same, Colls, 2330.
Disinfecting and deodorising gases given off, Dixon, 2409.
Moulding, compressing, &c. drain pipes, Clubley, 2534.
Deodorising, Monckton, 2581.
Sewers with depositing tanks, McIntyre, 3225.
Sanitary tube making machine, Whitehead, 3229.
Draining burial vaults and graves, Kendall, 3276.

**Drains and sewers—*cont.***

Shaft or pipe and cowl for, Banner, 3400.
Digging or making, Hall, 3491.
Powder for deodorising and disinfecting, Bond, 3790.
Regulating gear for drainage pumps, Fletcher, 3544.
Ventilating and consuming gases from, Harding, 3869.
Removing gases from, and consuming them, Matthews, 3949.
Pipes and sewer bottoms, Oppenheimer (*Hirsch*), 3984.
Making and laying pipes for, Ramsay, 3889.
Covers for syphon boxes, Dowland, 3963.
Combined ventilator, flushing box and lamp hole, Batten, 3992.
Double system of sewers, Morrell, 4247.
Ventilating and flushing shaft for, Morrell, 4247.
Relieving private drains of gases, Gill, 4363.
Stench traps, Davis, 4403.
Draining or drying up lakes, &c., Bonneville (*Hessard*), 4417.
Ventilating, Hogg, 4468.

**Drapery and hangings.** *See* "Upholstery."

**Draught slides and plinths.** *See* "Doors."

**Draw bars for railways.** *See* "Railway carriages."

**Drawers and pants.** *See* "Knitting."

**Drawers and wardrobes.** *See* "Furniture."

**Drawing fibres.** *See* "Spinning."

**Drawing instruments.** *See* "Mathematical."

**Drawing nails.** *See* "Nails."

**Drawing room skates.** *See* "Skates."

**Drawing wire.** *See* "Wire."

**Drawings (fixing colors on).** *See* "Pictures."

**Draw-links.** *See* "Links."

**Drays.** *See* "Carriages."

**Dredgers; dredging and deepening water:**

Propelling and steering, Brown, 307.
Raising and lowering bucket ladder, Brown, 307.
Removing sand banks, &c. by screw propellers, Appleby (Van [*Rietschoten & Houwens*), 1283.
Hand dredgers for sinking wells, foundations, &c., Bull, 1425.
Pumping material from bed of rivers, &c., Kennard, 1767.
Pumping material from bed of rivers, &c., Kennard, 1815.
Actuating dredging bucket engine, Simons & Brown, 2438.
General construction & arrangement, Simons & Brown, 2438.
Buckets for & clearing troughs in, Johnson (*Couvreux*), 2472.
Removing mud, sand &c., by suction apparatus, Bazin, 3694.
General construction of and working, Barns & others, 3760.

**Dress improvers.** *See* "Dresses."

**Dresses:**

Cutting button holes in, Clark (*Goodwin*), 364.
Clasping pin for holding up skirts of, Armstrong, 666.
Dress improvers and crinolines, Henderson, 1252.
Sewing borderings or trimmings on skirts, &c., Badcock, 1332.
Patterns for cutting out, &c., Johnson (*Buttrick & Co.*), 2172.
Making dress improvers of felted wool, Pendlebury, 2349.
Embroidery or bordering for skirts, Barnard, 2582.
Suspenders with safety pins for skirts, Snow (*Greely*), 2534.
Connecting clasps, &c. to dress suspenders, Avery, 2534.
Hoops for crinolines and bustles, Williamson, 2862.
Attaching dress improvers to corsets, Williamson, 3038.
Embroidering skirts, Rigby, 3140.
Trimmings for, Senier & Harwood (*Desterbecq*), 3265.
Fabrics, for bodies, skirts, &c., Mähler & Mähler, 3349.
Using willow for bustles, Binaepfel & Pointer, 3360.
Of Angola warp and worsted or lustre weft, Munn, 3615.
Waterproof lining, for protecting inside of, Flynt, 3718.
Protectors for bottoms of, Norwood & Cutler (*Murphy*), 3868.
Sewing bugles, &c. on garments, Johnson (*Salomons*), 4214.
Combined corset and dress improver, Whale (*Schultz*), 4277.
Dress improvers, Taylor, 4384.

**Dressing cases and bags:**

Constructing travelling, Van Dyk, 199.
Depositing nickel on metallic parts of, Underwood, 2953.
Depositing nickel on metallic parts of, Underwood, 3136.
Stamping tubular bands in metal of, Evans, 4266.

**Dressing cereals.** *See* "Grain (treating)."

**Dressing flour and meal.** *See* "Grinding."

**Dressing leather.** *See* "Leather."

**Dressing millstones.** *See* "Cutting stone."

**Dressing woven fabrics and yarns.** *See* "Finishing."

**Drill braces.** *See* "Ratchet braces."

**Drill (teaching military).** *See* "Teaching."

**Drilling or boring.** *See* "Boring."

**Drills.** *See* "Tools."

**Drills (dental).** *See* "Dentistry."

**Drills (manure).** *See* "Manure distributors."

**Drills (seed).** *See* "Sowing."

**Drinking fountains** *See* "Fountains."

**Drinking vessels:**
Cans and goblets, Pochet, 553.
Combined bottle stopper and drinking cup, Pochet, 553.
Moulding and pressing glass tumblers, Haley, 1927.
Nickelised metal cups, saucers and bowls, Monckton, 3509.

**Drinks or beverages.** *See* "Beverages."

**Driving bands.** *See* "Bands and belting."

**Driving machinery.** *See* "Propelling."

**Driving piles.** *See* "Piles."

**Drugs.** *See* "Medicines."

**Drums or pulleys.** *See* "Pulleys."

**Dry-closets or privies.** *See* "Water-closets."

**Drying and expressing moisture:**
From fabrics by centrifugal turbines, Deny, 16.
From wool, Gottheil (*Mehl*), 21.
Sheds for drying peat-fuel, Dudgeon, 22.
Warps, by heated rollers, Gottheil (*Lemmens*), 36.
Hay, wheat and other cut crops, grain and seeds, Gibbs, 50.
Sewage, cement, wool, rags, fibres & viscous matters, Gibbs, 50.
From peat, malt, grain, &c., Perry, 55.
Yarns, by heated air, Lord, 146.
Yarns, by heated air, Bullough, 177.
Heating drying closets for fabrics, Lewis & Wood, 180.
Hot-air machine for drying and stretching, Moison, 196.
From peat, Lake (*Griffin*). 212.
Glue, Turney & Turney, 305.
Rooms, buildings and fabrics by heated air, Clark (*Ligny*), 323.
Wood, grain, bricks, tiles, &c., Clark (*Ligny*), 323.
Hops, Noakes, 332.
Furnaces for, Dearman, 397.
Heating drums for fabrics, &c., Brook & Wilson, 427.
Chlorides into hard lumps, Hargreaves & Robinson, 448.
In treating maize for flour, Clark (*Chiozza*), 480.
Malt in vacuum, Barlow (*Galland*), 678.
Drying chambers for fabrics, Taylor, 751.
Centrifugal machine for sugar, Lafferty & Lafferty, 755.
Bone black, Clark (*Farley*), 876.
From peat, Barff & Kidd, 971.
In preserving substances, Danet & Feuillant, 1007.
Sheds for peat and artificial fuel, Radeke, 1032.
Stove for drying or airing clothes, Peacock, 1065.
Producing heat for, Jensen (*Erichsen & Maardt*), 1072.
Yarn and cloth, Baerlein, 1098.
From peat, Imray (*Hays*), 1104.
And pressing boiled potatoes for preserving, Morris, 1203.
Peat, malt, corn, fruit, &c., Wise (*Sbořil*), 1242.
Material for making warming or drying coils, Brannon, 1246.
From peat, Radeke & Smyth, 1355.
Yarns by heated air or steam, Bullough & Whitehead, 1365.
Discharging moisture from semi-solids, Clark, 1453.
Peat bricks for fuel, Knowles, 1547.
Bagasse, &c. Bonneville (*Rampant*), 1561.
Cylinders for, fabrics, Lancaster & Dollander, 1569.
Centrifugal machine for sugar, Alliott & Fryer, 1773.
Centrifugal machine for sugar, Duncan (*Weinrich*), 1870.
Sheds and ovens for drying peat-fuel, &c., Danchell, 2048.
Hot-air stove for, fabrics, Bainbridge & Pinkney, 2112.
And bumbling wool after washing, Moore, 2150.
In preserving food, Hunt (*Reynoso*), 2160.
Fibres, in extracting oil or grease, Bentley, 2262.
Blood, for making manure, Myerson, 2273.
Or curing peat for fuel, Lake (*Griffin*), 2480.
Drying and seasoning timber, Mc Neile, 2508.
Peat for fuel, Jensen (*Mault*), 2543.
Cockle-stove for, fabrics, grain, sand, powder, &c., Perry, 2550.
System applicable to apparatus for, Mouly, 2566.
Peat for fuel, charcoal, &c., Monckton, 2581.

**Drying and expressing moisture—*cont.***
Paper and fabrics by hot-air, Taylor, 2626.
Governors for steam dryers, Clark (*Bradford*), 2648.
By alternately evaporating and condensing steam, Roe, 2702.
Sewage, by waste heat from coke ovens, Bennett, 2710.
And tentering pieces or lengths, Stott & Barker, 2766.
Meat, &c. for preservation, Dufrené (*Tellier*), 2770.
Centrifugal machines for sugar, &c., Müller, 2773.
Centrifugal machines for treating sugar, De Mornay, 2787.
Fabrics by hot-air stove, Truswell & Holden, 2867.
Fabrics in process of drying, Sauvée (*Corron*), 2982.
Sewage, &c. for manure, Kidd, 3199.
Peat, malt, corn, fruit, &c., Wise (*Zbořil*), 3208.
Artificial fuel previous to moulding, Griffiths, 3233.
Destroying gases from drying floors, Bowen & Miller, 3324.
From wool, Bryant, 3364.
Sugar in forms or moulds, Partz, 3435.
Fabrics or "artificial leather," Meech, 3484.
Jet apparatus for drying rooms and fabrics, Körting, 3505.
Malt, Wirth (*Stenger & Walther*), 3524.
Drying floors for bricks, tiles, &c., Batley & Watkinson, 3537.
Centrifugal machine for, Newton (*Donner*), 3553.
From spent tan, Murdoch (*Honnaij*), 3583.
Peat, malt, grain, hops, grains, &c., Perry, 3598.
Yarns, fabrics, paper, &c. by hot air and cooling same, Knowles [& Kay, 3636.
Fish for cooking, smoking and preserving, Hönck, 3645.
Regulators for hydro-extractors, Mégy & others, 3656.
By heat from water in sealed tubes, Scott & Timmis, 3686.
From lumber or other articles, Woods, 3711.
Moveable tenter frames for fabrics, Broadbent, 3752.
Vegetable fibres for felting and spinning, Meech, 3821.
Stove or chamber, for white lead, pigments, &c., Perry, 3827.
Kiln for drying fuel, &c., Lyttle, 4080.
Tea and other substances, Pridham, 4133.
Green or soft bricks, &c., Wedekind & others, 4138.
Ovens or furnaces for drying ores, Stone, 4298.
Feeding steam for drying paper pulp, Wise (*Coignet*), 4325.
Substances, in extracting oils and fats, Bentley, 4452.

**Drying fabrics.** *See* "Drying."

**Duplex telegraphy.** *See* "Telegraphs."

**Dust bins:**
Combined dry earth closet and dust-bin, Green, 3413.
For dry-closets, Walter, 3510.

**Dust screens or guards:**
House and railway carriage, Gedge (*Bradley Window Co.*), 91.

**Dusting brushes.** *See* "Brushes."

**Dyeing fibres, fabrics and yarns:**
Single thread warps before weaving, Gottheil (*Lemmens*), 36.
Wool and other fibres, Petrie, 43.
Hot-air apparatus for drying yarns after, Lord, 146.
Fabric for covering cylinders, Mewburn (*Chalumet*), 156.
Mordant for cotton and union goods, Bird, 179.
Ozonising indigo solutions, Monckton, 265.
And "fixing" colors upon fabrics, Dawson & Slater, 633.
And treating Turkey red yarns and fabrics, Pollock, 866.
With "French blue" & "cyanide of blue," Tongue (*Bang*), 1451.
Straining dye stuffs Clark, 1453.
Or striped goods in sections, Thornton & Thornton, 1506.
Or "melangeing" fabrics or yarns, Smith & Smith, 1756.
Roves for colored yarns, Kennedy, 2213.
Or color-printing fabrics, Clark (*Bozzini*), 2389.
Linen and cotton threads for ornamenting, Badcock, 2651.
Mordanting, soaping, &c. silk yarns, Dickins & others, 2658.
Imparting motion to frames in, Sauvée (*Corron*), 2982.
Turkey red fabrics, Wallach & Jones, 3166.
On both sides, by means of dies & pattern blocks, Gibbs, 3214.
Cotton black for weaving elastic web, &c. fabrics, Lowe, 3453.
And gradually shading yarns for warps, Munn, 3603.
In aniline black or shades of same, Clark (*Grawitz*), 3632.
Consuming smoke in furnaces, &c. in, Jowett & Hunter, 3739.
Recovering matters from waste waters, Mackay, 3751.
Fixing metallic oxides on silk, Tessié du Motay, 4172.
Regulating steam pressure in, Wise (*Coignet*), 4325.
Employing compounds of vanadium in, Sellon & Pinkney, 4433
Heating baths, Comte de Beaurepaire de Louvagny, 4450.

**Dyes and printing colours:**
Hair-dye, Bramwell, 79.
Canocarpine, Micheá, 284.
Revivifying waste iron in making aniline, Hinde, 878.
From waste prussiates of potash and soda, Nield & Foster, 914.
Tannin, Micheá, 957.
Alizarine and purpurine, Dufrené (*Persod*), 1074.
Alizarine and isopurpurine, Auerbach & Gessert, 1269.
Recovering, from waste textile materials, Smith (*Meleille*), 1314.
Aniline blacks and aniline products, Casthelaz, 2009.

**Dyes and printing colours—*cont.***

Aniline base for colouring matters, Casthelaz, 2009.
Alizarine, Rumpff (*Bayer & others*), 2071.
Blue coloring matter, Thomas (*Girard*), 2347.
Treating tertiary monamines for, Thomas (*Girard*), 2347.
For transfer-printing fabrics, Clark (*Bossini*), 2389.
Obtaining, in making prussiates, Nield & Foster, 2624.
Sulphate or muriate of ammonia, Nield & Foster, 2624.
Instrument for testing the quality of, Tinker (*Munnich*), 2633.
Extracting, from dye-woods, to save fuel, Chenaillier, 2791.
Treating alizarine for producing colors, De Lalande, 2841.
Coloring matters for raised designs, Eugetsdorff, 3144.
Treating and preparing for use, aniline and other, Zingler, 3757.
Salts or compounds of vanadium, Sellon & Pinkney, 4453.

**Dynamometers:**

Arranging springs, &c. of, Burg, 4390.

## E.

**Earrings.** *See* "Jewellery."

**Earth-boring.** *See* "Boring or sounding."

**Earth-closets.** *See* "Water-closets."

**Earthenware; porcelain; ceramic wares:**

Constructing moulds or dies, Maw, 264.
From powdered clay by compression, Maw, 264.
Asbestos saggers, Hyatt, 478.
Combining asbestos slip with clays for fired ware, Hyatt, 478.
Screwing the exterior necks of bottles of, Rose, 497.
Making & heating printer's stoves or hot plates, Harlow, 541.
Composition for gas and water pipes, &c., Baggeley, 721.
Ornamenting or reproducing photographs on, Brown, 731.
Heating kilns, Jensen (*Erichsen & Maardt*), 1072.
Mixing and sifting potters' clay, Boulton, 1119.
Producing ornamental designs, &c. on china, Lee, 1137.
Asbestos cloth for enamelling, Cleghorn & Paterson, 1145.
Straining moisture from clay slip, Clark, 1453.
Pottery kiln, Bull, 1538.
Ornamenting pottery, stoneware, terra-cotta, &c., Brock, 1562.
Suspending crockery ware in kilns, Clark (*Jackson*), 1760.
Packing crockery and material for, Ivimy (*Long*), 1897.
Making heavy articles in clay, Cliff, 2034.
Addition to a potter's wheel for shaping clay, Buchan, 2180.
Salt-glazing clay goods, Holland, 2470.
Using "Brynamman" clay for making, Holland, 2470.
Vitrifying surfaces of "terra-cotta goods," Holland, 2470.
Pulverising porcelain paste, Alsing (*Edwards*), 2537.
Cockle-stove for drying green pottery ware, Perry, 2559.
Fluted paper packing for china, Ivimy (*Long*), 2600.
Ornamenting, by the aid of stencil plates, &c., Lee, 2623.
Making oil-printing blocks for decorating, Durand, 2656.
Separating water from "slip," Scott, 3076.
Depositing metals on, Morgan-Brown (*Hansen*), 3148.
Sheets and plates for holding porcelains, &c., Hyatt, 3171.
Pipe and sanitary tube making machine, Whitehead, 3229.
Bottles, jars and other articles, Murray & Crighton, 3422.
Printing and transferring designs, &c. to, Holyoake, 3444.
Aërated liquid bottles and ball stopper, Codd, 3448.
Imitation "faïence Parisienne," Gedge (*Guelton & Co.*), 3724.
Stoneware pipes, Ramsay, 3889.
Fuel-saving kiln for burning pottery ware, Williams, 3956.
Imitating china, &c. ornaments, Clark (*Ulmann*), 4356.

**Easels:**

Combined table and, Camp (*Knight*), 858.

**Ebullioscopes;**

Constructing, Clark (*Malligand & Brossard-Vidal*), 1885.

**Edge tools.** *See* "Tools."

**Effervescent liquids.** *See* "Aërating."

**Eggs (preserving).** *See* "Preserving food."

**Elaïdic acid.** *See* "Acids."

**Elastic fabrics.** *See* "Fabrics (elastic)."

**Elbow tubes.** *See* "Pipes."

**Electric light:**

Preventing glass cracking in apparatus, Monckton, 265.
Actuating, &c. the carbon electrodes, Lake (*Day*), 1261.
Apparatus for producing, Johnson (*De Mersanne*), 1446.
Supplying and regulating rods in producing, Whitehouse, 1820.
Illuminating compass cards, &c., Haseltine (*Cook*), 2717.
Thermo-electric apparatus for generating, Monckton, 3509.
Lamps for utilising, for illuminating, Powell, 4435.

**Electric signals.** *See* "Signals."

**Electric telegraphs.** *See* "Telegraphs."

**Electrical machines.** *See* "Electricity."

**Electricity, galvanism and magnetism (applications.**

Operating railway breaks by, Wilson, 75.
To adjusting ships' compasses, Reynolds 101.
To tell-tale pressure gauges, Abel (*Redslob*), 168.
Electric deposition of metals, Monckton, 265.
Electric light to medical purposes, Monckton, 265.
Electrical rods to railway rails, Monckton, 265.
In crystallisation of sugar, Monckton, 265.
In producing pigments, Monckton, 265.
In smelting furnaces, Monckton, 265.
In steam-engines, Monckton, 265.
To curative purposes, Monckton, 265.
Thermo-electric apparatus for generating ozone, Monckton, 5[illegible]
Thermo-electricity for producing motive-power, Monckton, 5[illegible]
To defecating sewage, Monckton, 265.
To propelling ships and carriages, Monckton, 265.
In signalling on railways, Whiteman, 270.
Magnetic stoppers for bottles, jars, &c., Hickinson, 279.
In separating ores, King, 296.
Annunciator for house purposes, detecting fire, &c., Finger, 29[illegible]
In steering vessels by fluid pressure, Beaumont, 392.
To railway points and switches, Marchant, 415.
In signalling on railway trains, Mackie, 440.
Electro-magnets to type-setting machines, Hooker, 477.
To gas-engines, Ford, 486.
To indicating speed of engines, Reynolds, 515.
To domestic fire-alarms, Bonneville (*Joly*), 518.
To railway recording apparatus, Wollaston, 596.
To fire alarms and call signals, Davies & Higgins, 640.
For producing sound signals upon railways, Price, 747.
In signalling, Dodwell, 764.
In ornamenting marble, &c., with copper, Hubmann, 925.
To moving and regulating clocks, &c., Browne (*Herlof*), 9[illegible]
In signalling, Bartholomew & Neale, 917.
To igniting explosive matter, Carobbi & Bellini, 961.
In working railway signals, Tyer, 1013.
In signalling trains and issuing orders, Walker, 1026.
For indicating removal of poison bottles, Clarke, 1034.
To preventing "fluff" in clearing thread, Cowper, 1106.
Magnetising trusses, splints, pads, &c., Darlow, 1121.
To fire and temperature alarms, Sparkes & Marsh, 1147.
To lighting lamp wicks, Voisin & Dronier, 1169.
To anemometers, Ballingal, 1177.
In making "Buttereine," Haseltine (*Smith*), 1219.
To fire-alarm telegraphs, Guest, 1225.
To indicating speed and progress of trains, Groubman, 1251.
To electric light apparatus, Lake (*Day*), 1261.
In block signalling on railways, Whyte, 1271.
To depositing steel, Noad, 1422.
To heating rock in mining, tunnelling, &c., Wordermann, 1[illegible]
Electrical winder for clocks, musical boxes, Wignall, 1[illegible]
To producing light, coating, &c., Johnson (*De Mersanne*), 1446.
To nickelising and coating, Brook & others, 1492.
To the electro deposition of nickel, Baker & Unwin, 1493.
To impelling pendulums, Mc Kellen, 1505.
To excavating coal and other minerals, Wilde, 1554.
In operating grapnels, Clark (*Toselli*), 1559.
Applying a magnet, &c. to anemometers, Lowne, 1567.
To torpedo boats or vessels, Caldwell (*Lay*), 1573.
To preventing "fluff" in clearing thread, Cowper, 1579.
To automatic railway signals, Barr, 1745.
Annunciator for hotels and other buildings, Finger, 1779.
To electric light apparatus, Whitehouse, 1820.
To indicators of speed and revolution of shafts, Barr, 1851.
To preventing railway collision, Van der May (*Ansingh*), 1[illegible]
To depositing metal on cornets, &c., Dupont, 1947.
To signalling by the "Clapptograph" code, Clapp, 1960.
Magnetism for curative and other purposes, Lyon, 1984.
Magnets, to opening secret locks or fastenings, Faddy, 1[illegible]
To preventing explosion of torpedoes, McEvoy, 2068.
Fastener for electrodes and pole plates, Pulvermacher, 2172.
To generating ozone, Hunt (*Reynoso*), 2181.
To fire detectors or alarms and indicators, Lewthwaite, 2311.
To ships' sounders, Poole, 2351.
Gas lighting, Bean, 2380.
To controlling railway signals, Farmer & Tyer, 2422.
To the deposition of metals, Unwin & others, 2454.
To warning ships of shallow water, Molony, 2473.
Magnetised hammers, Tongue (*Thompson*), 2488.
In making peat charcoal, Monckton, 2561.
To automatic fire-alarms, Cole, (*Klingelhoefer & Co.*), 2619
To therapeutic purposes, Welton, 2628.
To signalling in railway trains, Winter, 2637.
To telephones, Johnson (*Gray*), 2646.
To governors of steam heaters, Clark (*Bradford*), 2646.
To illuminating compass cards, &c., Haseltine (*Cook*), 2[illegible]
In signalling on railways, Currer, 2724.
To igniting gas in engines, Johnson (*Wolcott & Wood*), 2[illegible]
To lighting miners' & other lamps when fastened, Teale, 2[illegible]
To winnowing or separating powdered iron ores, Lyttle, 2[illegible]

**Electricity, galvanism and magnetism—*cont.***

For operating clocks and time-keepers, Greenwood, 3089.
To type composing machinery, Winder, 3137.
Depositing metal on glass, &c., Morgan-Brown (*Hansen*), 3148.
To burglar alarms, Wright (*Howe*), 3311.
Igniting and illuminating, Lake (*Lambrecht & Wippern*), 3351.
To medical & surgical uses, Lake (*Lambrecht & Wippern*), 3351.
To signalling from train in motion to station, Kellow, 3370.
To signalling in railway trains, Goldstone & others, 3381.
To depositing copper on boilers and boiler plates, Unwin, 3403.
To automatic fire and burglar alarms, Higgins, 3414.
In tanning hides or skins, Johnson (*Méritens*), 3431.
To railway breaks, Morgan-Brown (*Gianoli & others*), 3482.
To propelling ships and aërostation, Monckton, 3509.
To defecating sewage; consolidating carbons, Monckton, 3509.
To medical treatment, Monckton, 3509.
To lighting and extinguishing gas lamps, Jones & White, 3511.
To signalling and working of railways, Salomons, 3515.
To water level alarms of steam-boilers, Lake (*Watson*), 3518.
To signalling in trains, Preece & others, 3521.
To bell apparatus for hotels, Jensen (*Wiman*), 3533.
To isolating ships' compasses, Such (*Benary & others*), 3539.
To railway signal and communicating apparatus, Whyte, 3722.
Applying accumulators, Clark (*Lartigue*), 3771.
To indicating working of railway points, Bevan, 3793.
To signalling when millstones are exhausted, Render, 3837.
To medical purposes, Pulvermacher, 3937.
To depositing and precipitating metals, Pulvermacher, 3937.
To fire-alarms and call bells, Johnson (*Baudry*), 3984.
In self-acting block signalling apparatus, Clough, 4086.
Magnets to water-meters, &c., Muller, 4228.
To electric bell signalling apparatus, Gent, 4300.
To antibilious and other pills, Darlow & Fairfax, 4406.
To silver precipitating tanks, Clarke & Smith, 4448.

**Electricity, galvanism and magnetism (generating):**

Corrugating and channelling magnets, Newton (*Stone*), 94.
Armatures, batteries, cells, coils, condensers, &c., Monckton, 265.
Currents from ships' sides, propellers, &c., Monckton, 265.
Recovering spent elements in batteries, Monckton, 265.
Magnets for curative purposes, &c., Monckton, 265.
Constructing machines, Bousfield (*Smith*), 380.
Leyden jars, Bousfield (*Smith*), 380.
Constructing and heating thermo-electric piles, Clamond, 1199.
Galvanic battery for telegraphs, &c., Bennett, 1255.
And distributing currents, Johnson (*De Mersanne*), 1446.
Recording variations in intensity of currents, Johnson (*Redier & Co.*), 1587.
Magnets and armatures, Van der Mey (*Ansingh*), 1933.
Induction coils, Courtenay, 2179.
Solid depolarising mixtures, Newton (*Leclanché*), 2463.
Batteries and electro-magnets, Slater, 2625.
Constructing "Galvanic Lockets," Welton, 2628.
Constructing battery for train signalling, Winter, 2637.
Producing secondary currents, Johnson (*Gray*), 2646.
Magneto-electric machine, Werdermann, 3156.
Magnets, bobbins & "Isopolar induction," Werdermann, 3156.
Excitant for galvanic batteries, Smith, 3223.
Galvano-hydrostatic apparatus, Lake (*Lambrecht & Wippern*), 3351.
Sesquioxide of iron battery, Clark (*Clamond & Gaiffe*), 3420.
Applying sun's heat in thermo-electricity, Monckton, 3509.
Armatures, batteries, battery cells, Monckton, 3509.
Carbons, commutators, coils, electrodes, Monckton, 3509.
Magnets and exciting solutions, Monckton, 3509.
Currents from sea-water and ships' sides, Monckton, 3509.
Currents from screw-propellers and wheels, Monckton, 3509.
Battery for ships' compasses, Such (*Benary & others*), 3539.
Preparing anodes of nickel for nickelising, Perkins, 3587.
Commutator, Clark (*Lartigue*), 3771.
And conducting, measuring or testing, Pulvermacher, 3937.
Coating voltaic battery cylinders, Pulvermacher, 3937.
Battery or pile and excitant, Bonneville (*Chutaux*), 4453.

**Electro-magnetic engines:**

Pendulum actuated by magnets, Chamberlin, 54.
Magnets of rotary engines, Newton (*Stone*), 94.
Actuating, by water power, Monckton, 265.
Constructing various kinds of, Monckton, 265.
Locomotives for underground railways, Monckton, 265.
Magnets, batteries and condensers for, Monckton, 265.
Thermo-electricity as applied to, Monckton, 265.
Electricity as applied to, Johnson (*De Mersanne*), 1446.
For working coal and mineral excavators, Wilde, 1554.
Magnets, bobbins, &c. for, Werdermann, 3156.
Constructing and operating, Monckton, 3509.
Magnets and cylinders of, Monckton, 3509.
Constructing and combining, Bonneville (*Chutaux*), 4454.

**Electro-plating.** *See* "Coating metals."

**Electrotype printing.** *See* "Printing."

**Elevated railways.** *See* "Railways."

**Elevating or stacking corn, &c.** *See* "Stacking."

**Elevators.** *See* "Hoists."

**Embalming corpses.** *See* "Corpses."

**Embankments:**

Mastic for pointing, backing or filling up, Rae, 1674.
For sinking bridge piers, &c. under water, Hunter, 2097.

**Embossing; producing raised patterns:**

Glass, Sutherland, 31.
Metallic tubing, Atkins, 210.
Fabrics, Hughes, 309.
Mouldings, Clark (*Gschwind & Beberdick*), 421.
Press for leather and other fabrics, Waterman, 996.
Producing plates for, Placet, 1807.
Or raising a bead in making metallic boxes, James, 2072.
Ornamental bricks and tiles, Holland, 2470.
Stamping press for, Brookes (*Farjon*), 2867.
Forming raised surfaces on show tablets, Trevisany, 2905.
Leather, cloth, &c., Cheesbrough (*Platts & Walden*), 2928.
Rotary presses, with curved dies for books, &c., Gowans, 2941.
Pocket apparatus for, Lawrence & Lawrence, 3091.
Producing raised designs on fabrics, Engetsdorff, 3144.
Stamping and inking bonds, &c. in relief, Bodel & others, 3277.
And stamping envelopes, note paper, &c., Hely, 3707.
Or figuring woven fabrics, Gedge (*Chiffray*), 3786.
Stamping or pressing designs on metals, Smily, 4202.

**Embroidering.** *See* "Sewing."

**Emery powder:**

Hardening; substitute for, Macintosh, 2945.

**Emptying bottles.** *See* "Bottles."

**Emptying sacks.** *See* "Bags."

**Enamelling; enamels:**

Shoe tips, Johnson (*Pollok*), 247.
Imitation marble, Delcon, 525.
Asbestos cloth for ground work, Cleghorn & Paterson, 1145.
Dial and other plates, Robinson, 1356.
Plates for "emaux cloissonnés," Placet, 1807.
Sleeve buttons, sticks, &c., Lustig, 2997.
Imitating vitro-enamel on iron, Oliver, 3099.
Printing and transferring designs, &c. to, Holyoake, 3444.
Pipes, &c., Haseltine (*American Enamel Co.*), 4486.

**Endless railways.** *See* "Railways."

**Endorsing stamps.** *See* "Stamps."

**Engine counters.** *See* "Indicating speed."

**Engraving; etching; producing sunk devices:**

Whetting graving tools, Vaughan (*Messier*), 1443.
Matrix blocks for printing blocks, Shanks (*Johnson*), 1517.
Composition for and method of etching, Skinner, 1670.
Producing grained or engraved plates, Placet, 1807.
Forming sunk surfaces in show tablets, Trevisany, 2905.

**Envelopes:**

Opening, Rutulini, 959.
Letter-envelopes for advertising purposes, Tarbutt, 1829.
Combined envelope and letter-sheet, Baronio, 3387.
Printing, stamping or embossing, Hely, 3707.
Safety, to detect fraudulent opening, Jacobsohn, 3953.
Vessel for moistening, Jacobsohn, 3975.
Safety, to detect fraudulent opening, Harris, 4051.
Postal sample bags and, Baronio, 4319.

**Envelopes or wrappers used in seed crushing:**

Making of india-rubber, &c., Searle, 1630.

**Epsom salts.** *See* "Medicines."

**Essential oils.** *See* "Oils (vegetable)."

**Etching.** *See* "Engraving."

**Ether:**

Evaporating, for cold producers, Harrison, 383.
Portable sprayers for, Burman & De Frece, 575.
Condensing, in producing cold, Dufrené (*Tellier*), 2770.
Meters for and cooling, in ice-making, Siddeley & Mackay, 3425
Recovering, used in extracting substances, Braun, 4348.

**Eupion.** *See* "Oils (mineral)."

**Evaporating pans.** *See* "Heating and evaporating."

**Excavating:**

Peat from bogs, Lake (*Griffin*), 212.
Peat and clay, Clark (*Challeton*), 781.

**Excavating—*cont.***
Operating or working excavating machines, Wilde, 1554.
Hand dredgers for, Bull, 1625.
Sand and gravel under water (sand pump), Kennard, 1707.
Material in making tunnels and subways, Greathead, 1738.
And lifting mud, sand, clay, &c., Hunter, 1741.
Sand and gravel under water (sand pump), Kennard, 1815.
Channels, canals, docks, rivers, &c., Simons & Brown, 2058.
And preparing foundations under water, Hunter, 2097.
Peat from bogs, Lake (*Griffin*), 2490.
Clay & earth for railway cuttings, docks, &c., Lawrence, 3180.
Or extracting peat, Viehoff (*Balbiani*), 3196.
And deepening channels, rivers, &c., Barns & others, 3789.
Or cutting reeds, Leigh, 4320.

**Excavating or hewing coal.** *See* "Mining."

**Excreta (treating).** *See* "Manure."

**Exercises and games.** *See* "Games."

**Exhausting fluids, &c.:**
Gaseous and liquid products, McBeath, 601.
Direct-acting engines for, Fielding, 788.
Air and gases from fused iron and steel, Parsons, 879.
Air or gas, Alliott, 942.
Pump for, Mirrlees (*Watson*), 972.
Gas exhauster, Hulett and Chandler, 1287.
Rotary sulphate exhausters, Hargreaves & Robinson, 2018.
Gases, impure air or steam from buildings, Ashton, 2054.
General construction & arrangement of pumps, Walker, 2371.
Gas exhauster and agitator combined, Russ, 2847.
Jet and other apparatus for, Körting, 3471.
Air jet exhauster for ventilating carriages, Körting, 3506.
Steam or other fluid jet apparatus for, Körting, 3507.
Air, gas and other fluids, Johnson, 3545.
Centrifugal pump or fan for, Paget (*Nagel & Kaemp*), 3719.
Centrifugal apparatus for air, &c., Rammell, 3813.
Air and gases, Dodge, 3829.
Bellows apparatus for, Mather (*Clausolles*), 3910.
Rotary air pump or exhauster, Louche, 3961.
Impure air from buildings, ships, mines, &c., Hogg, 4468.

**Expanding tubes.** *See* "Pipes."

**Explosion of liquids (preventing):**
In lamps, cans, barrels, &c., Hendrix, 1011.

**Explosive compounds:**
Waterproof mastic for coating powder barrels, Bageau, 649.
Used in compressing air, Carobbi & Bellini, 961.
Collodionised cases for, Clark (*De Froideville*), 1275.
For blasting, Gottheil (*Rhenish Dynamite Co.*), 1566.
Treating gun-cotton for powder and, Mackie & others, 2062.
Hydrocarbonated gunpowders, Davey & Watson, 2641.
Carbonising spent tan for powder, Murdoch (*Honnaij*), 3533.
Of gun-cotton and nitrate of baryta, Mackie & others, 3612.
Magazines for storing, Newton (*Gossi*), 3716.
Transporting & storing gunpowder, &c., Macklin & Moore, 3733.
Mining charges, Faure & Trench, 3781.
Fulminating compounds, Newton (*Stockwell & others*), 3782.
Vessels submerged in water for protecting, Roby, 3920.
For blasting (Carboazotine), Gray (*Cahuc & Soulages*), 3934.
Magazines for storing, Burney, 3944.
Pebble or "infant" gunpowder, Haycraft, 4009.
Chambers for storing, &c., Baker & Steed, 4416.
Metallic casks for storing and transporting, Haycraft, 4478.

**Expressing moisture.** *See* "Drying."

**Extinguishing fire.** *See* "Fire-engines."

**Extinguishing gas.** *See* "Gas."

**Extracting metals from ores.** *See* "Smelting."

**Extracts and infusions (obtaining):**
From tea by hydrostatic pressure, Molyneux, 61.
Quinine, by hot process, Deiss, 147.
Artificial vanillin, Haarmann, 709.
Coffee, herbs, berries, grains, seeds & leaves, Hutchinson, 756.
Purifying water to obtain a larger yield of, Smith, 1002.
Infusing coffee, &c., Fenby, 1090.
Distilling tinctures and, Harris (*Walton & others*), 2053.
Essential oil of hops, Johnson (*Breithaupt*), 2083.
Instrument for testing the quality of, Tinker (*Munnich*), 2633.
Juices from plants in general; saving fuel, Chenaillier, 2791.
Preparing concentrated, in vacuo, Edwards (*Freeland*), 3766.
Extracting substances soluble in ether, Braun, 4348.

**Eye protectors.** *See* "Spectacles."

**Eye wash or lotion.** *See* "Medical, &c."

**Eyelets:**
For labels, boots, stays, &c., Elsam (*Pults & Walkley*), 1577.

# F.

**Fabrics (elastic):**
Covering strands for warps of, Turner, 855.
Narrow flat fabrics and "oval braid," Turner, 1187.
Securing rubber strands in terry fabrics, Turner, 3297.
Loom for weaving narrow goods, Burlock (*Chapman*), 3556.

**Fabrics (woven):**
Soap or dressing for preserving, Johnson (*Cambon & Co.*), 18.
Of silk waste ("Bourrette"), Mewburn (*Chalamet*), 156.
Adding a "purl" after manufacture, Yates, 197.
Forming single or double box plaits on, Rath, 295.
Ornamenting, goffering, plaiting and crimping, Hughes, 389.
Removing vegetable matters from, Brewer (*Joly*), 433.
Ornamenting table-covers, garments and other, Heaven, 446.
Waterproof mastic for coating, joining, &c., Bageau, 649.
Crisping or doubling, Elder, 670.
Twisting fringe on, Brooks, 727.
Fringing, Collins, 789.
Of asbestos paper yarn, Cleghorn & Paterson, 1145.
Yarns for fancy cotton, Hutchinson 1366.
Compound, Rowan & Reid, 1507.
Producing designs on velvets, &c., Henderson (*Ambert*), 1902.
Modes of magnetising, Lyon, 1954.
Coating or "Plastique" for, Lake (*Bell*), 2250.
Compound, Rowan & Reid, 2425.
Gathering up or frilling, Clark (*Vignet frères*), 2523.
Folding or plaiting, Johnson (*Chamberlain*), 2573.
Ornamenting or embroidering, Rigby, 3140.
Crimping, creasing, &c., Senier & Harwood (*Desterbecq*), 3353.
Coating for, to imitate leather, &c., Hunstone & Thorpe, 3423.
Goffering, embossing or figuring, Gedge (*Chiffray*), 3786.
Sewing beads, bugles, &c. on to, Johnson (*Salomons*), 4216.
Coating or "Plastique" for, Lake (*Bell*), 4343.
Ornamenting or embroidering, Briggs & others, 4471.

**Fæces (treating).** *See* "Manure."

**Faïence Parisienne.** *See* "Earthenware."

**Fan-lights.** *See* "Windows."

**Fans.** *See* "Blowing-engines."

**Fare registers.** *See* "Registering."

**Farina vitæ.** *See* "Preserving and preparing food."

**Farriery.** *See* "Horse-shoes."

**Fats.** *See* "Oils (animal)."

**Fatty acids.** *See* "Acids."

**Faucets.** *See* "Cocks."

**Feather dusting brushes.** *See* "Brushes."

**Feathering water-wheels.** *See* "Water-power."

**Feathers:**
Grinding or triturating, Anduze, 1286.
Utilising waste, Smith (*Melville*), 1314.

**Fecula and starch.** *See* "Starch."

**Feeding bottles for infants, &c.** *See* "Bottles."

**Feeding fuel to furnaces.** *See* "Furnaces."

**Feeding game, poultry, &c.** *See* "Troughs."

**Feeding water to boilers.** *See* "Steam-boilers."

**Felling trees.** *See* "Plants and trees."

**Felt; felted fabrics:**
Machine for drying and stretching, Moison, 194.
Carpets ("Fresco carpets"), Tavernier, 466.
Producing felt ("Coactile"), Tavernier, 466
Asbestos, Hyatt, 478.
Waterproof mastic for coating, joining, &c., Bageau, 649.
Planking hats, Mills (*Klein & Co.*), 665.
Crisping or doubling, Elder, 670.
Fabrics of asbestos, Cleghorn & Paterson, 1145.
Wicks for illuminating purposes, Lefebvre, 1637.
Blocking or moulding felt hats, Drewett, 2216.

**Felt; felted fabrics—*cont.***

Felting wool for dress improvers, Pendlebury, 2349.
Strengthening and waterproofing, Job, 2433.
Stretching the tips and brims of hats, Eaton, 2731.
Treating "Thibaude" for roofing, Gedge (*Gaudefroy*), 2732.
Quilted fabric for coverings, &c., Gedge (*Gaudefroy*), 2733.
Ornamenting or embroidering fabrics, Rigby, 3140.
Dyeing and coloring fabrics on both sides, Gibbs, 3214.
Or "artificial leather" for floor-cloth, &c., Meech, 3484.
Preparing fibres for, Morgan-Brown (*Mennig & Mennig*), 3534.
Separating, &c. vegetable fibres for, Meech, 3821.
Shaving or removing fibres, &c. from fabrics, Monks, 3834.
Frames for curling or shaping hat brims, Burch, 3967.
Forming hat bodies, Wharton & Yule, 4474.

**Felted stone sheeting.** *See* "Stone."

**Fences; hurdles:**

Joining and tightening wires, Eustace, 1766.
Joining and tightening wires, Eustace, 3172.
Strained wire and bar fences and hurdles, Elsdon, 3280.
Close and open wooden, Plimpton, 3508.
Connecting, joining and straining wires of, Timmins, 3800.
Ornamental and other metallic, Devoe & Walker, 4093.
Sockets for fixing and preserving wooden posts, Hale, 4144.
Portable trellis work for fencing, Stevenson, 4220.

**Fenders for fire-places:**

And ash-pans with corrugated bottoms, Crawford, 3278.

**Fenders for vessels.** *See* "Ship-building."

**Fern stands:**

Compound material for and mode of making, Brannon, 2027.

**Ferralum.** *See* "Disinfecting."

**Ferries:**

Constructing, working and vehicle for, Obach, 1343.
Rolling bridge for shallow rivers, Muirhead, 2136.

**Ferrules:**

For inserting taps in casks, Russ, 1163.
Wire tubing for, Lothrop, 1780.
Turning and fitting, on fishing rods, Jack, 1840.
Forming designs on, for umbrellas, Ellis & Taylor, 3654.

**Fertilisers.** *See* "Manure."

**Fettling or lining furnaces.** *See* "Furnaces."

**Fibres (craping).** *See* "Crape."

**Fibres (obtaining):**

Separating silk fibres from waste cocoons, Gaddum, 1618.
From silk rags, Abel (*Mueller*), 1636.
And disintegrating, Hugon (*Berthet & Labérie*), 2063.
From wood, bark, straw, &c., Newton (*Mitscherlich*), 2939.
For a composition or substitute for wood, Odling, 3570.
From bamboo, cane, palm and grasses, Meech, 3821.

**Fibres (oiling):**

Woollen, Gottheil (*Mehl*), 21.
Wool and jute, Coleman, 985.
Lubricant for use in "preparing" wool, Jackson, 1591.
Lubricant for use in carding wool, Greig, 1970.

**Fibres (opening, extracting grease from, cleaning):**

Wool, Gottheil (*Mehl*), 21.
Drying wool by heated air, Gibbs, 50.
Wool washing, Holden & Holden, 114.
Dressing silk fibres, Mason & Mason, 821.
Wool washing, Gedge (*Fabas*), 1193.
Shake willey, Knowles, 1581.
Percussive engine for beating flax, Darlington, 1724.
Breaking and scutching flax, Clark (*Hartog & Co.*), 1900.
Drying and bumbling wool after washing, Moore, 2150.
Oil, &c. from wool, cotton waste, hair, &c., Bentley, 2262.
Constructing "willows," Greenhalgh & others, 2697.
Stripping or scutching flax, hemp, ramie, &c., Cardon, 2998.
Feeding, &c. self-acting willows, Messrs. Holt, 3074.
Cleansing wool, &c. from grease, burrs & seeds, Sirtaine, 3120.
Applying an exhaust to openers and cleaners, Clegg, 3143.
Cleaning, opening and softening flax, hemp, &c., Gibbs, 3159.
Washing wool, Bryant, 3364.
Rolled wire cards for openers, &c., Ashworth & Ashworth, 3441.
Cleaning, &c. for felt, Morgan-Brown (*Mennig & Mennig*), 3534.
Centrifugal drying machine, Newton (*Donner*), 3553.
Actuating flax breaking machines, Aspinwall, 3723.
Feeding washed wool, &c. to squeezing rollers, Clough, 4095.
Wool washing machinery, Hoyle & others, 4179.
Extracting fat from raw wool, Braun, 4348.
Oils, &c. from wool, cotton, waste, hair, &c., Bentley, 4452.

**Fibrolite.** *See* "Wood."

**Fibrolithite or "fibre-stone."** *See* "Stone."

**Fictile ware.** *See* "Earthenware."

**Figure weaving.** *See* "Weaving."

**Files and clips:**

Clip protector for points of, Bennett, 945.
Clamp for holding or clipping letters, &c., Price & Warn, 1986.
For exhibiting ticketed and other articles, Potter, 2339.
Leaf-holders for filing invoices, letters, &c., Mudge, 2341.
Holders or files for letters, invoices, &c., Marston, 3395.

**Files and rasps:**

Grinding and polishing, Wilde, 343.
Multiple tool, Baille, 603.
Making cast steel files, Johnson, 2094.
Of india-rubber and hard powdered matters, Macintosh, 2945.
General construction of machine for cutting, Mondon, 3426.
File cutting machine, Haseltine (*Vogel*), 4054.

**Filling bottles.** *See* "Bottles."

**Filling kegs and casks.** *See* "Casks."

**Filling sacks.** *See* "Bags."

**Filters; filtering; clarifying; straining:**

Sheet, cylindrical or curved, Deny, 16.
Water, for steam-boilers, Knab, 53.
Liquids and gases under pressure, Newton (*Sinclaire*), 205.
Water, for houses, Huerne, 207.
Filters for chamber utensils, &c., Synge, 254.
House drainage, street and river water, &c., Synge, 255.
Defecating sewage, Monckton, 265.
Filters and strainers of asbestos, Hyatt, 478.
Water filters for liquid meters, Everett (*Brooks*), 500.
Carbon filtering blocks for ships' tanks, Atkins, 506.
Straining peat in washing, Smith & Hannam, 562.
Saccharine juices, syrups, oils, &c., Piver, 634.
Filter press for brewers, Barlow (*Galland*), 678.
Filter beds for drying grease mud, Benjamin, 682.
Strainers for coffee-pots, &c., Hutchinson, 756.
Purifying foul water or sewage, Goodall, 848.
Purifying and softening water, Smith, 1002.
Petroleum residuum, Chesebrough (*Chesebrough*), 1012.
Purifying sewage, Short, 1171.
Self-cleaning rotary pulp strainer, Elie, 1192.
For water-meters, Haseltine (*Read*), 1223.
Peat-pulp, Radeke & Smyth, 1355.
Lixiviating copper solutions, Gallico (*Stella*), 1404.
Sewage, Towle, 1426.
Partially fluid or semi-solid substances, Clark, 1453.
Filters and filtering media, Bond, 1509.
Peat-pulp in making fuel, Knowles, 1547.
Purifying carbon liquids or solids, Steedman, 1663.
Filtering oil in lubricating, Oclee & Woodcock, 1806.
Clarifying sewage and impure waters, Goodall, 1826.
Liquids from solid matters, Johnson (*De Loynes*), 1916.
Compressed air, before producing cold, Marchant, 1946.
Filtering sewage, night-soil, &c. for manure, Hughan, 1959.
Self-cleaning pulp-strainer, Newton (*Andouard*), 2051.
Cylindrical liquid filters and cleaning same, Perrett, 2060.
Arranging and cleaning bag filters, Perrett, 2061.
Filters for water and liquid manure carts, Pearson, 2126.
Filtering alkali solutions, Imray (*Kühne*), 2242.
Water filters and filtering material, Bischof, 2243.
Stone-ware water filters, Morgan & Moelchaerek, 2245.
Clarifying impure waters, Hallsworth & Bailes, 2408.
Strainers for fat rendering tanks, Lake (*Firman*), 2419.
Clarifying sewage and foul liquids, Schmersahl, 2439.
Purifying sewage water ("Vortex filter"), Lyttle, 2446.
Using carbonate of magnesia as sewage filter, Scott, 2450.
Hydrometrical water filter, Wise (*Le Tellier*), 2496.
Strainers for cisterns or tanks, Finch, 2499.
Filtering tanks for sewage and water, Willett & others, 2567.
Applying an exhaust below filters, Monckton, 2581.
Peat-pulp, oils, sewage, &c., Monckton, 2581.
For use in making coal gas, Aitken, 2587.
Defecating saccharine solutions, Johnson (*Marot*), 2713.
Feed-water for steam-boilers, &c., Beck (*Bidtel*), 2735.
Straining oils and fats, Hollands & Ilbery, 2804.
For use in making sulphuric acid, De Hemptinne, 2807.
Filtering rain water in eaves-gutters, &c., Lambert, 2865.
Or separating water from "slip," cements, &c., Scott, 3076.
Filtering vegetable machine oils, Kaposi (*Klosak*), 3160.
Using hanks of cotton, &c. in & making, Newton (*Lavers*), 3178.
Filtering sewage, &c. for manure, Kidd, 3199.
Purifying sewage waters, McIntyre, 3225.
Filtering feed-water of steam-boilers, Berryman, 3306.
Filtering rain water, Bessemer, 3319.
Straining or filtering slops and liquid refuse, Bond, 3326.
Or purifying air in confined spaces, Hunt (*Reynoso*), 3377.
Filtering excreta in moveable cesspools, Bonnefin, 3384.
Sieve taps, accessible for cleaning, Ainsworth, 3405.
Filtering lubricants in oiling slides, Woodcock, 3423.

**Filters; filtering; clarifying; straining—*cont.***

Clarifying impure waters, Hallsworth & Bailes, 3459.
Air compressing apparatus for expediting, Körting, 3471.
Distilling water, Körting, 3505.
Purifying water by electricity, Monckton, 3509.
For domestic and ships' use, Kirtley, 3525.
Purifying refuse water, Paget (*Bérenger & Stingl*), 3613.
Combining refrigerators with water distillers, Low, 3638.
Purifying impure waters and sewage, Mackay, 3751.
Charcoal or carbon for defecating sewage, Vallé, 3784.
Combined condenser, filter and aërator, Lake (*Lighthall*), 3853.
Producing distilled water, Lake (*Lighthall*), 3853.
Rotary pulp strainers, Roeckner, 4117.
Clarifying cane juice, &c., Hunt (*Girdwood*), 4153.
Clarifying impure water or sewage, Goodall, 4158.
Or fining ale, beer, &c., Bruce, 4180.
Sewage through natural soil, Morrell, 4247.
Arranging and cleaning filtering material, Perrett, 4262.
For clarifying oil from cotton waste, Kirton, 4299.
Sulphuric acid, for re-use in tin-plate works, Pughsley, 4373.
The "scouring waters" of tin-plate works, Pughsley, 4373.
Purifying and softening water, Wanklyn, 4431.
Purifying tanks for treating ores, Clarke & Smith, 4448.
Filtering box for portable closets, &c., Martin, 4480.

**Fining ale, porter, &c.** *See* "Brewing."

**Finishing and dressing woven fabrics:**

Woollen cloths, Abel (*Varinet & Enoult*), 184.
Stretching and jigging cloth, Stewart, 193.
Dressing and hot-pressing, Macmillan, 240.
Producing watered or tabbied wares, Gebauer, 321.
Rotating hydraulic mangle for, Gebauer, 321.
Soluble oil for, Watterson, 456.
Size for dressing, Blackburn, 540.
Mangling or smoothing in weaving, Clegg & Hoyle, 650.
Or producing designs, &c. on "plush" or "pile," Howgate, 1148.
Ironing, pressing or smoothing machines, Sanson, 1418.
Starching and drying, Lancaster & Dollander, 1569.
Preparing colored starch for, Farrant, 1751.
Box smoothing irons for, Warner & others, 2076.
Regulating burners for gassing, Manchester & Turner, 2311.
Rigging, pressing and cuttling, Mellor & others, 2415.
Beetling machine fallers, Gartside & Bradbury, 2492.
Beetling machines, Smith, 2748.
Fixing gathers in, by steaming, Clark (*Vignet frères*), 2823.
Stampers, for beetling machines, of wood & iron, Connor, 3430.
Irons for pressing, &c. and heating same, Stichbury, 3454.
Beetling machines, Patterson, 3485.
Drying starched goods by heated air, Knowles & Kay, 3636.
Regulators for calendering machines, Mégy & others, 3656.
Moveable tenter frames for drying, Broadbent, 3752.
Copper singe plates, Sumner & Waldenström, 3812.
Shaving or removing fibres, &c., Monks, 3834.
Raising, &c. stampers of beetling machines, Lowry, 4131.
Removing the "whip" of lappet cloth, &c., Burnett, 4167.
Ageing printed fabrics, Thom, 4236.
Damping piece goods, Clark (*Decoudun*), 4263.

**Finishing and dressing yarns and threads:**

Gassing by a series of Bunsen burners, Rhodes, 1073.
Singeing and drying, Baerlein, 1098.
Clearing and smoothing, Cowper, 1106.
Cleaning yarns, Mewburn (*See*), 1298.
Clearing and smoothing, Cowper, 1679.
Preventing floss forming rings on rollers in, Cowper, 1679.
Starching and polishing sewing thread, Weild, 2226.
Regulating burners for gassing, Manchester & Turner, 2311.
Burner or gasalier for singeing, Warburton, 2468.
Burner and ventilator for gassing frames, Wallace, 3318.
Polishing and dressing, for making thread, Hutcheson, 3418.
Stampers, for beetling machines, of wood & iron, Connor, 3430.
Beetling machines, Patterson, 3485.

**Finishing printed sheets of paper.** *See* "Printing."

**Fire-alarms:**

Electro-magnetic annunciator, Finger, 298.
Domestic electric, Bonneville (*Joly*), 518.
Automatic electric, Davies & Higgins, 640.
Electric fire detector or, Sparkes & Marsh, 1147.
Thermostatic electric, Guest, 1225.
And detectors for buildings, mines & ships, Lewthwaite, 2313.
Transmitting, upon a single wire, Davies & Higgins, 2478.
Automatic electric, Cole (*Klingelhoefer & Co.*), 2619.
Automatic, for buildings, Trash, 2977.
Automatic electric, Higgins, 3414.
Automatic, for buildings, hay lofts, granaries, &c., Hughes, 3538.
Automatic electric, Johnson (*Baudry*), 3984.
Automatic, for buildings, Hughes (*Parmelee*), 4288.

**Fire-arms, guns and ordnance:**

Breech-loading rifles, Jensen (*Duval*), 13.
Stopping windage in ordnance, Noble, 554.
Strengthening cannons, Allen, 614.

**Fire-arms, guns and ordnance—*cont.***

Breech-loading small-arms, Hughes (*Whitney*), 628.
Breech-loading drop-down guns, Scott, 712.
Breech-loading bolt guns, Greene, 785.
Attaching bayonet sockets to, Burton, 884.
Breech-loading repeating, Burton, 884.
Smooth bore and rifled ordnance, Lake (*Wiard*), 938.
Breech-loading small-arms, Pieri, 1087.
Breech-loading rifles, &c., Swingle & others, 1141.
Lock mechanism of "drop" guns or rifles, Needham, 1293.
Breech-loading mechanism of small-arms, Villin, 1214.
Making, mounting and working cannons, Schultz, 1374.
Automatic repeating, Humbert & Joy, 1400.
Breech-loading rifles, Léscuyer, 1460.
Treating iron wire for cannon and gun barrels, Lvoff, 1473.
Breech-loading rifles and shot guns, Pape, 1645.
Breech-loading mechanism of small-arms, Selwyn, 1798.
Breech-loading "break-down" guns, Trevelyan, 1817.
Casting cannons, Willans, 1911.
Breech lock mechanism of drop-down guns, Scott, 2052.
Stacking small-arms, Henderson (*Gaylord*), 2110.
Gun-carriage bearings, Wirth (*Kleinpell & Dramburg*), [illegible].
Breech mechanism, Clark (*Thomas-Auguetil & Grenes*), [illegible].
Breech mechanism of "falling block" small-arms, Wyley, [illegible].
Attaching metal work to stocks of, Wyley, 2238.
Cleaning rod of breech-loading small-arms, Wyley, [illegible].
Breech-loading military small-arms, Trinquier, 2280.
Locking the breech of small-arms, Perkes, 2530.
Rifling small-arms for use with gun-cotton, Punshon, [illegible].
Coating barrels, locks, &c., with rubber, Silver, [illegible].
Cushioning, &c. butt-end of, to lessen shock, &c., Silver, [illegible].
Breech-loading small-arms, Morgan-Brown (*Hotchkiss*), [illegible].
Breech mechanism, extractor, rifling small-arms, Pieri, [illegible].
Using metallic cartridges in Chassepôt and other, Roper, [illegible].
Hydraulic presses for forging tubes for, Whitworth, [illegible].
Breech-loading drop-down guns and rifles, Greener, [illegible].
A "treble wedge fast" breech-loading action, Greener, [illegible].
Constructing and working machine guns, Farwell, [illegible].
Internal tubes for ordnance, Moffatt, 3288.
Locks for revolving pistols, Altendorf (*Fagnus & Co.*), [illegible].
Breech-loading cannon, Gardner (*Broadwell*), 3399.
Breech-loading drop-down guns, Scott, 3424.
Double-barrelled sporting breech-loaders, Jeffries, [illegible].
Electro-gilding and "nickelising," Monckton, 3509.
Platinising barrel interiors, Monckton, 3509.
Strikers for & actuating hammers in, Lawden & Thomas, [illegible].
Working and training heavy guns, Grenfell & Newman, [illegible].
Repeating pistols and other, Jonas (*Szalay*), 3623.
Stopper for muzzles of rifles and ordnance, Edwards, [illegible].
Pendulo-telescopic-micrometric-sight for, Scott, 3964.
For scaring birds, burglar and poacher alarms, &c., Duke, [illegible].
Breech-loading action of small-arms, Selwyn, 3989.
Lock mechanism for hinged falling block rifles, Edge, 4052.
Light breech-loading artillery, Pieri & Smith, 4073.
Mounting and working mountain guns, Pieri & Smith, [illegible].
Breech-loading cannon, Morgan-Brown (*Harding*), 4168.
Forming bore or interior of gun barrels, Lake (*Kerr*), 4217.
Tubes for lining or making ordnance, Newton (*Brooks*), [illegible].
Breech-loading repeating guns, Count von Kropatschek, [illegible].
Stamping or forging gun implements, Vaughan, 4439.
Working heavy guns, Anderson, 4489.

**Fire-arms (cartridges for).** *See* "Cartridges."

**Fire-boxes or furnaces.** *See* "Furnaces."

**Fire-bricks.** *See* "Bricks."

**Fire-engines; extinguishing fire:**

Regulating water-pressure in, Clark (*Casement*), 70.
Hollow bricks containing materials for, Hyatt, 783.
Or preventing spread of fire in buildings, Ching, 869.
In buildings, by flooding apparatus, Dunlop, 820.
Arranging pipes or hydrants in buildings for, Salomons, 914.
In ships, houses, by water tubes, conduits, &c., Lawrence, [illegible].
In buildings, by beams, &c. to hold water, Taylor & others, [illegible].
Carbonic acid gas apparatus, Wallace & Tucker, 1407.
Arranging hydrants & pipes in warehouses, &c., Wright, [illegible].
Supplying hot and cold water to buildings for, Simeaton, [illegible].
Laying on steam for, Lake (*Coleman*), 2065.
Working fire annihilators, Lewthwaite, 2313.
Arranging roses, pipes, &c. in buildings for, Brereton, [illegible].
Arranging cisterns, valves and pipes in houses, Neill, [illegible].
Portable stand pipe or hydrant, Clarke, 2660.
Hydrant or valve for water mains, Payton, 2742.
Double-acting engine for working steam, Scott (*Hess*), [illegible].
Rose apparatus for buildings, ships, &c., Halmshaw, [illegible].
Engine for discharging carbonic acid and water, Foster, [illegible].
Double-acting engine, Druce, 3069.
Arranging hydrants in buildings, Tylor, 3735.
Producing carbonic acid gas, &c. for, Wallace & Tucker, [illegible].
Chemical blocks or balls for, Wallace & Tucker, 3746.
Compressing air for working, Johnson (*Faiers*), [illegible].
Arranging pipes and couplings in ships, &c., Thompson, [illegible].
Laying on steam and water for, Lake (*Coleman*), [illegible].

**Fire-engines; extinguishing fire—*cont.***
For extinguishing fire by carbonic acid gas, Delpech, 4287.
Carbonic acid gas apparatus for ships, &c., Delpech, 4287.
Automatic fire extinguisher, Hughes (*Parmelee*), 4288.
Combined locomotive and, Bonneville (*Havard*), 4417.

**Fire-escapes:**
Domestic, Leon, 8.
Portable domestic, Dyer, 328.
Combining articles of furniture with, Isaacs, 388.
For ships, Bonneville (*Wacker & Boll*), 647.
Constructing telescopic, Kitson & Naylor, 891.
Portable, for buildings, Lake (*Bustin*), 962.
Elevator partly applicable as a, Mitchell, 1302.
Ladders and windlass for telescopic, Clayton, 1580.
Domestic, Martin, 1836.
Telescopic ladders for and raising shoots of, Hawkings, 2089.
Domestic, Flood, 2943.
Fixed portable and folding ladders, Frémy, 3020.
Domestic rope apparatus or escape, Hill, 3216.
And hoists for mills, &c., Kitson & Naylor, 4178.
Using multiple sheave friction blocks as, Wethered, 4446.

**Fire-irons:**
Of "nickelised" iron, Monckton, 3509.

**Fire-lighters.** *See* "Fuel."

**Fire-places; stoves; ranges:**
Drying stove, Gibbs, 50.
For heating railway carriages, Johnson (*Mousseron*), 73.
Rivetting stove piping, Mohr, 152.
Stoves for heating, drying and cooking, Lewis & Wood, 180.
Burners for gas stoves, Gedge (*Liotard*), 242.
Applying a cinder sifter to, Chippindale, 318.
Increasing heating power and saving fuel in, Reed, 355.
Economising and utilising heat in stoves, Snell, 379.
Heating stoves, Brook & Wilson, 427.
Economising fuel and preventing smoke in, Sherman, 464.
Revolving curtain blower, Sherman, 464.
Porous asbestos for burning gas in stoves, Hyatt, 478.
Adapting fire-baskets to save fuel in, Spartali, 513.
Fire-boxes for heating buildings, Buckingham, 351.
With double casings to economise fuel, Meldrum, 559.
Air-supplying above the fuel, Sanderson & Proctor, 600.
Stove for cooking, heating and saving fuel, Freund, 607.
Connecting stoves with baths or bathing tubs, Neuhoff, 627.
Condensing products emitted from stoves, Leoni, 629.
Diminishing fire space in, to save fuel, Brady, 738.
Lining compound to save fuel in, Batstone & Batstone, 745.
Fitting water heating box under the grate, Smith, 883.
Heating, lighting, ventilating and cooking, Peacock, 1065.
Economising fuel in kitcheners and, Simpson, 1067.
Saving fuel and consuming smoke and gases, Wood, 1085.
Kitchen ranges, Redmayne, 1123.
Pot holes of cooking stoves, Clark (*Kidd*), 1160.
Arranging air-heating tubes in, Matthews, 1210.
Increasing heating effects in, to save fuel, Brechin, 1216.
Adjustable cooking range, Chapman, 1224.
Material for Russian stoves ("Lignolithite"), Brannon, 1246.
Coal-oil stove, Lake (*Thorp*), 1264.
Reflecting heat in, for saving fuel, Whitworth, 1266.
For heating air for warming; saving fuel, Lake (*Cushing*), 1403.
For bakers' ovens, to burn gaseous fuel, Fearnley, 1423.
Moveable sliding grates & scrapers; saving fuel, Chalk, 1432.
Stove for heating and saving fuel, Looker, 1585.
Fuel-saving appliance for fire-grates, Schofield, 1727.
Heating air to promote combustion and save fuel, Dennis, 1797.
Saving fuel and consuming smoke in, Black & Leiper, 2013.
Combustion plates or inducers and fire-bars for, Redish, 2055.
Liquid fuel apparatus for cooking, Johnson (*Thorp*), 2100.
Hot-air stove for warming and ventilating, Whiting, 2104.
Heating air in and for, Bainbridge & Pinkney, 2112.
Hot-air stove with duplex pipes, Duport, 2144.
American or close cooking stoves, Dobbie & Forbes, 2353.
Kitcheners and hot stoves or plates to save fuel, Court, 2405.
Saving fuel in, by the use of clay, &c., Cochrane, 2445.
Stove for heating and cooking by gas, Fearns & Jackson, 2481.
Obtaining draught in camp ovens or canteens, Turner, 2484.
Fuel saving "Victoria cooking stove," Tomkins, 2504.
Stoves for drying and seasoning timber, Mc Neile, 2508.
Cockle-stoves for drying, roasting, heating, &c., Perry, 2559.
Heating and ventilating stove, Mouly, 2566.
Portable or pocket stoves, Lefèvre, 2580.
Constructing, for heating air for warming rooms, Ball, 2583.
Constructing kitchen ranges with "Janus grate," Ball, 2583.
Applying japanned metals to backs, sides, &c. of, Hughes, 2593.
Constructing and coating cooking stoves, Stone, 2615.
Self-generating gas stove, Gaukroger & others, 2618.
Kitchen ranges and saving fuel in, Pain, 2630.
Supplying air to consume smoke in, Wrigley & others, 2756.
Arranging air & smoke flues in stoves and ranges, Sykes, 2779.
Applying a hollow hot hearth to, Caton, 2792.
Stove for cooking, heating and saving fuel, Freund, 2849.
Hollow gill heating stove, Truswell & Holden, 2867.

**Fire-places; stoves; ranges—*cont.***
Reversible grates for domestic; saving fuel, Russell, 2895.
Cinder sifters and collectors for, Hawkins, 2898.
Arranging burners in the form of a stove, Silber, 2968.
Stove for burning fuel from top, Blaziceck & Bauer, 2973.
Saving fuel and preventing waste of heat in, Lane, 2975.
Hollow fire-bars and flues for heating air for, Deguine, 2983.
Supplying air to fire-holders, Constantine & Hearson, 3088.
Ovens, boilers and fire-box for cooking ranges, Corbitt, 3283.
Consuming smoke and saving fuel in ranges, Corbitt, 3283.
Dead plates for stove furnaces, Darlaston & Hawkins, 3292.
Gas cooking apparatus, Whelan, 3320.
Moveable backs, to supply air and save fuel, Hawken, 3402.
Close or open kitchen ranges, Wright & Redmayne, 3466.
Stoves, &c. of "nickelised" iron, Monckton, 3509.
Stove or hot-chamber for leavening bread, De Souza, 3702.
Smoke consuming & fuel saving stove, Jowett & Hunter, 3739.
Stove for hydro-carbon vaporising retorts, Fogarty, 3792.
Stove or chamber for drying and evaporating, Perry, 3827.
Stove for heating water for warming rooms, Jacobsohn, 3952.
Grate-backs for sham register and other, Shorland, 3999.
Gas air heating stoves for rooms, Harrold, 4027.
Heat shields and supports for stoves, &c., Conger, 4030.
Stoves, Ritchie, 4043.
Petroleum heating and cooking stoves, Lotz, 4132.
Stove for portable hot dry air baths, Money, 4182.
Stove for heating, warming and ventilating, Eyre, 4256.
Combined cooking and hot-air stove, Whitehead, 4315.
Bell stove for warming rooms, Coventry, 4379.

**Fire-plugs.** *See* "Watering."

**Fire-proofing; rendering uninflammable:**
Portable fire-escapes, Dyer, 328.
Plastic asbestos for resisting fire in buildings, &c., Hyatt, 478.
Materials and compositions for iron safes, Goater, 552.
Buildings, Taylor, 751.
Illuminating parts of buildings, Hyatt, 783.
Buildings, Dunlop, 820.
Buildings and ships, Salomons, 910.
Composition for, Muratori, 931.
Asbestos covering for, Cleghorn & Paterson, 1145.
Material for roofs, floors, &c., Brannon, 1246.
Buildings, safety rooms & safes, Taylor & others, 1331.
Buildings, Brannon, 1372.
Storehouses for furniture, &c., Knightley, 1449.
Uninflammable imitation leather, Muratori, 1524.
Buildings, Collcutt, 1549.
Buildings and illuminating parts of ships, Hyatt, 1715.
Fire-proof sheathing plates for various uses, Hyatt, 1715.
Warehouses or storehouses, Wright, 1776.
Ships and other floating structures, Brannon, 2028.
Material for safes, strong rooms and casings, Brannon, 2029.
Compound material for buildings, &c., Brannon, 2128.
Bricks and cement of "Brynamman" clay, Holland, 2470.
Powder coating fire-bricks and fire cements, Holland, 2470.
Composition for protecting safes, Jensen (*Meidell*), 2523.
Buildings, Brereton, 2524.
Bars, joists, beams, ties and girders, Hyatt, 2550.
Store-houses for petroleum and spirits, Gittins, 2725.
Constructing concrete floors and roofs, Payne, 2786.
Non-conductor for fire-proof safes, Peacock, 2833.
Fabrics, by a compound of glycerine and soap, Nicoll, 3336.
The joints of powder and other magazines, Burney, 3946.
Cane used in making tube brushes, Nash, 4193.

**Fire-screens.** *See* "Screens."

**Fire-works:**
Compound & case for Bengal lights &, Johnson (*Lamarre*), 214.
Hollow globes for pyrotechnic shells, Murrow, 1063.
Collodionised cases for, Clark (*De Froideville*), 1275.
Discharging pyrotechnic compositions, Rogers, 3113.

**Firing torpedoes.** *See* "Torpedoes."

**Fish oils.** *See* "Oils (animal)."

**Fish (preserving).** *See* "Preserving food."

**Fishing; fishing tackle:**
Treble purchase capstans for, Smith & others, 193.
Self-adjusting fastening for rod joints, Moultray, 1648.
Rod sockets and ferrules; fixing joint ends, Jack, 1840.
Making nets for, Lake (*Arnold*), 2138.
Angler's belt ("Grantley Berkeley belt"), Budden, 2661.
Making fish hooks, Newton (*Court & others*), 2729.
Shooting harpoons, by rebound of springs, Stephens, 2744.
Net making machinery, Low & Houston, 3736.

**Fixing colours after printing.** *See* "Printing."

**Fixing colours in dyeing.** *See* "Dyeing."

**Fixing colours on drawings.** *See* "Pictures."

**Flasks.** *See* "Bottles."

**Flasks or moulds.** *See* "Casting."

**Flat-irons.** *See* "Ironing."

**Flavouring and ageing alcohol.** *See* "Alcohol."

**Flax.** *See* "Fibres" and "Spinning."

**Fleshing skins.** *See* "Leather."

**Flexo-lithite.** *See* "Stone."

**Floating breakwaters.** *See* "Breakwaters."

**Floating bridges.** *See* "Bridges."

**Floating docks.** *See* "Docks."

**Floating grounded vessels.** *See* "Ships (raising)."

**Flock papers.** *See* "Paper-hangings."

**Floodgates or sluices.** *See* "Sluices."

**Floor-cloth; oil-cloth:**

Paper pulp and sponge for making, Lake (*Kendall*), 701.
Grinding cork for kamptulicon and linoleum, Anduze, 1226.
Laying colour on blocks for printing, Mc Kay, 1369.
Compound fabric for, Rowan & Reid, 1507.
Compound sheet or fabric for, Hawksworth, 1968.
Applying "Zapotine" in making, Conybeare & Naphegyi, 2106.
Compound fabric for, Rowan & Reid, 2425.
Strengthening and waterproofing felt for, Job, 2433.
Distributing colour on, in printing, Ireland, 2757.
Compound material for ("mica," &c.), Talling & Seccombe, 3048.
A coating for cloths to imitate, Hunstone & Thorpe, 3429.
Fabric or "artificial leather" for, Meech, 3484.
Waterproofing, Wilkinson, 4026.
Making, curing or ripening fabrics for, Thomson, 4029.
Substitute for ("Plastique"), Lake (*Bell*), 4343.

**Floors:**

Dry-rubbing and polishing, Johnson (*Jacobsohn*), 349.
Asbestos fireproof pasteboard for, Hyatt, 478.
Fireproofing, Taylor, 751.
Fireproofing and uniting wood for, Muratori, 931.
Material for forming ("Lignolithite"), Brannon, 1246.
Bricks with projections and recesses for, Abel (*Jaehne*), 1610.
Constructing and fire-proofing, Hyatt, 1715.
Compound material for covering, Brannon, 2027.
Stone-coating, McGrigor (*Robertson*), 2047.
Compound material for forming, Brannon, 2128.
Cement or plastic for floor coverings, O'Friel, 2500.
Advertising block for, Cotter, 2545.
Constructing and fireproofing, Hyatt, 2550.
Brush for polishing, Bonneville (*Nevière*), 2591.
Constructing concrete, Payne, 2786.
Equilising pressure on spring, Miller, 2964.
Uniting glass to, by means of "glazune," Hartley, 3084.
Shaping and applying metal sheets, &c. to, Hyatt, 3171.
Mastic of asphalte for, Skinner, 3217.
Combining, &c. wooden strips for forming, Plimpton, 3508.
For drying bricks, tiles, &c., Batley & Watkinson, 3537.
Portable trellis work for covering, Stevenson, 4220.
Machine for polishing wood, Lake (*Renard*), 4441.
Floor lights, Newton (*Foley & others*), 4445.

**Flour mills.** *See* "Grinding corn."

**Flour (self-raising).** *See* "Bread."

**Flow of liquids (regulating).** *See* "Valves."

**Flower pots; flower and plant cases:**

Making to admit of better drainage, Warren, 461.
Cases for windows, &c. in buildings, Raggett, 1060.
Compound material for and mode of making, Brannon, 2027.
Applying japanned metals as a covering, Hughes, 2593.
Self-watering, &c. troughs, holders and, George, 3317.
Wooden flower tubs, boxes & pots, Johnson (*Goulas & Co.*), 3893.

**Flues and chimneys; cleaning chimneys; cowls:**

Puddling furnace, Benson (*Morris & others*), 64.
Dampers of steam-boiler furnaces, Clark (*Casement*), 69.
Regulating draught in steam-boiler, Billings & Billings, 137.
Regulating draught in steam-boiler, Lake, 174.
For reducing furnaces, Kyte (*Wilson*), 339.
Steam-boiler, Blake, 396.
Or chambers for heating air, Newton (*Babbitt*), 459.
Locomotive engine boiler, Adorno, 512.
Pipe-flues for heating apparatus, Buckingham, 551.
For stoves, grates or fireplaces, Sanderson & Proctor, 600.
Steam-boiler, Kitchin, 604.
Water tubes of boilers forming own, Rydill, 637.

**Flues and chimneys, &c.—*cont.***

For steam-boilers, Vicars & others, 669.
For heating bisulphide of carbon retorts, Johnson, 687.
Cleaning steam-boiler, by steam or air, Sutcliffe, 838.
Air flues of gas retorts, Newton (*Davison*), 919.
For Lancashire and egg ended boilers, Hydes & Bennett, 948
Chimney caps or terminals and wind guards, Cox, 1156.
Material for and mode of making hollow, Brannon, 1246.
For alkali furnaces, McDougall, 1311.
Round shell steam-boiler, Clark (*Haswell*), 1338.
For brick and other kilns, Bull, 1538.
Hot-air engine, Gottheil (*Berlin-Anhalt Maschinen Co.*), 156[illegible].
For furnaces ("Cowper's stoves"), Cochrane & Cowper, 16[illegible].
For furnaces, Jensen (*Ayer*), 1680.
For furnaces, De Pindray, 1719.
Flue plates or stops for hot-water apparatus, Weeks & Co., 17[illegible]
For furnaces used in deoxidising iron ores, Hunter, 18[illegible].
For furnaces, Campbell & Gemmill, 1895.
For steam-boilers, Russell, 1962.
Of peat drying ovens, Danchell, 2048.
For spherical steam-boilers, Lloyd, 2069.
Air-heating, for furnaces, &c., Bainbridge & Pinkney, 21[illegible].
Compound material for, and mode of making, Brannon, 2[illegible].
For "Elephant" steam-boilers, Sanderson & Co., 2161.
For welding furnaces, Tasker, 2203.
Combined heaters and flues for steam-boilers, Lloyd, 22[illegible].
Arranging steam-boiler, Spartali, 2367.
Supplying heated air to kitchener, Court, 2405.
Applying dampers to chimney tops, Eastwood & others, 24[illegible]
Arranging coke oven, Johnson (*Gobiet*), 2512.
For cockle-stoves, Perry, 2559.
Chimney cowls, Mouly, 2566.
For heating and ventilating buildings, &c., Mouly, 25[illegible].
And cowls for heating and ventilating buildings, Ball, 25[illegible]
Arranging steam-boiler, Oswald & Oswald, 2612.
Applying air-heaters to boiler, for drying, &c., Taylor, 2[illegible].
For kitchen ranges, Pain, 2630.
Arranging spiral, around gas retorts, Bowness & Judge, 26[illegible]
Parallel, for coke ovens and furnaces, Bennett, 2710.
Air and smoke, for stoves and kitchen ranges, Sykes, 27[illegible].
Non-conductor or coating for, Peacock, 2853.
Ventilating, for bedsteads, berths, &c., Roberts, 28[illegible].
Tubes acting as return flues in boilers, De Pindray, 28[illegible].
For supplying air to furnaces, fire-places, &c., Derome, 28[illegible].
For boilers or water heaters, Heaps & Wheatley, 29[illegible].
For furnaces of salt pans, Barrow, 3139.
For furnaces of wire annealing ovens, Littlewood, 3192.
Heating, for vertical steam-boilers, Dunlop, 3254.
For heating ovens and boilers in cooking ranges, Corbitt, 32[illegible]
Forming, in vertical boilers, Marriott, 3290.
Chimney cowl, Banner, 3400.
Arranging, in making artificial fuel, Heath & others, 34[illegible].
For leading waste gases from blast furnaces, Barclay, 34[illegible]
Jet exhauster for furnaces in lieu of chimney, Körting, 3[illegible]
Chimney tops, to prevent down draught, Brierley, 3[illegible].
Refractory material for making furnace, Horne, 3641.
For drying and evaporating stoves or chambers, Perry, 3[illegible]
For lime, brick and pottery ware kilns, Williams, 39[illegible].
Hot-air, for brick kilns, Wedekind & others, 41[illegible].
Spiral cane brush for cleaning, Nash, 4193.
Seamless boiler flues, Newton (*Brooks*), 4244.
For warming and ventilating apparatus, Eyre, 42[illegible].
Ventilating or avoiding down-draught in, Hogg, 41[illegible].

**Fluid-meters.** *See* "Meters."

**Flushing drains and sewers.** *See* "Drains."

**Flushing water-closets.** *See* "Water-closets."

**Fluting and crimping.** *See* "Goffering."

**Flux powders for welding metals.** *See* "Forging."

**Flyers.** *See* "Spindles."

**Fog signals.** *See* "Signals."

**Foil:**

Lead or tin, Murdoch (*Shaw*), 2246.

**Folding paper:**

In rotary web printing machines, Wilson, 557.
In rotary web printing machines, Nicholls, 2005.

**Folding woven fabrics.** *See* "Finishing."

**Food for animals:**

Pulping roots, Bentall, 726.
Compound for pigs, sheep, cattle and horses, Stephens, [illegible]
Oil-cake, Eskrett, 1101.
Pulping roots, Topham, 1146.
Masticating ("The Manducator"), Gedge (*Hivonnaz*), [illegible]
Oil-cake press, Downs, 1270.
Treating wool, hair, feathers, &c. for, Smith (*Meleille*), 1314

**Food for animals—*cont.***
Cutting, slicing and pulping roots, Hempsted, 1639.
Treating blood for horse, cattle & poultry food, Huch, 1734.
From sugar cane, maize and like stalks, Hunt (*Reynoso*), 2255.
Oil-cake, Eskrett, 2664.
Cutting and paring edges of oil-cake, Cowley, 3412.
Compressing and moulding oil-cake, Hodge, 3608.
Pulping and slicing roots, &c.; crushing oats, Edwards, 3617.
Cutting up and trimming the ends of oil-cake, Appleby, 3642.
Oil-cake, Ayres & others, 4374.

**Food for man.** *See* "Preserving food."

**Footpaths.** *See* "Roadmaking."

**Footsteps and bolsters.** *See* "Bearings."

**Foot-warmers:**
Hot-water, for carriages, Heaps & Wheatley, 2986.
Applying cork in making or lining, Ritchie, 3977.

**Forcing gaseous fluids:**
Apparatus or pump for, McBeath, 601.
Application of centrifugal force to, West, 662.
Rotary pump for, Cook, 840.
Pump for, Mirrlees (*Watson*), 972.
Double acting pump for, Lake (*Baxter*), 1236.
Air, gas and other fluids, Johnson, 1360.
Utilising surplus pressure in, Oram, 1868.
Injecting pump, Nehrlich, 1873.
Air into and through carburetting chambers, Howes, 1944.
Air into carburetted air generators, Stacey & Lace, 1958.
Pump or apparatus, Gamboni, 2185.
Air for raising, &c. beer, wines, water, oil, &c., Murphy, 2267.
General construction and arrangement of pumps, Walker, 2371.
Ether vapours into condensers, Dufrené (*Tellier*), 2770.
Jet apparatus for drawing, compressing and, Körting, 3471.
Air, gas and other fluids, Johnson, 3545.
Centrifugal apparatus for air, &c., Rammell, 3818.
Air and gases, Dodge, 3829.
Bellows apparatus for, Mather (*Clausolles*), 3910.

**Forcing heavy bodies or weights:**
Hydraulic apparatus, &c. for, Grenfell & Newman, 3607.

**Forcing water.** *See* "Pumps."

**Foreshores.** *See* "Breakwaters."

**Forging, hammering, shingling and welding metals:**
Shuttle tips for weaving, Kirk, 187.
Actuating steam hammers, Hooker, 203.
Constructing and operating revolving hammers, Stacy, 282.
Shingling puddled balls, Siemens, 428.
Welding copper, Benson (*Rehbein & others*), 495.
Combined cast iron and steel hammer for, Lauth (*Sleath*), 549.
Welding armour plates, Johnson (*Marrel Bros.*), 663.
Channelled or honey-combed, Hunt (*Sibut*), 867.
Weldless tyres, hoops or rings, Ashbury, 898.
Anvils and forge hammer blocks for, Evans, 969.
Chain links, Clark (*David*), 975.
Turning and welding skelps or strips for pipes, Evans, 1024.
Percussive machinery for, Warsop & Hill, 1181.
Giving motion to hammer, Scott, 1444.
Producing iron of great tensile strength, Lvoff, 1479.
Swaging blanks for shovels, &c., Curtis (*MacMartin*), 1594.
Actuating atmospheric hammers, Manson, 1603.
Varying mechanism for machines for, Lake (*Helmer*), 1656.
Triple-acting atmospheric hammer, Clark (*Chenot*), 1676.
Portable forges for various uses, Johnson (*Baxter*), 1677.
Percussive engine for planishing, &c., Darlington, 1724.
Steam hammers, Lake (*Pregél*), 1731.
Screw-bolts and like articles, Archer, 1757.
Percussive engines for, Jordan, 1767.
Tuyeres and tuyere apparatus for smiths' forges, Morgan, 1775.
Slag-punches or clinker-clearing apparatus, Morgan, 1775.
Making gaseous fuel for welding iron, &c., Sutherland, 1784.
Forming hammer frames and anvils, Sutherland, 1784.
Swaging hole in screw nuts, Clark (*Van Anden*), 1906.
Furnaces for welding, Tasker, 2203.
Welding boiler and other wrought metal tubes, Moore, 2427.
Piling steel and H iron for making rails, &c., Griffiths, 2548.
Steam or compressed air hammers, Haseltine (*Thurston*), 2741.
Welding links for chains, &c., Gray & Taylor (*Selden*), 2772.
Using elastic medium in hammer cylinders, Browett, 2887.
Heating air in and for portable forges, Dods, 2925.
Steam hammers, Barlow (*Turrettini & Colladon*), 3038.
Hydraulic presses for shaping and, Whitworth, 3064.
Fans or blowers for smiths' or forge fires, Nelson, 3135.
Bolt heads and nuts, Horsfall & Greenwood, 3141.
Screw nuts from bar iron at one heat, Greenwood (*Vogl*), 3142.
Flux powder for welding iron and steel, Abel (*Schierloh*), 3149.
Combined water and air anvil bed, Lake (*Hitchcock*), 3231.
Welding fire-box and shell of vertical boilers, Marriott, 3290.
Jet blower for forge hearths, Körting, 3507.

**Forging, hammering, shingling, &c.—*cont.***
Drying blast of steam jet blowers, Körting, 3507.
Copper singe plates, Sumner & Waldenström, 3812.
Tuyeres for forges or smith's fires, Lloyd, 3833.
Portable forges, Rollins (*Kellogg*), 4136.
Or stamping gun implements, edge tools, &c., Vaughan, 4139.
Regulating draft in smithy fires, Hogg, 4468.

**Forking and clearing land.** *See* "Tilling."

**Forks and knives.** *See* "Knives."

**Forks for stacking.** *See* "Stacking."

**Fortifications.** *See* "Batteries."

**Fountain penholders.** *See* "Pens."

**Fountain troughs for poultry, &c.** *See* "Troughs."

**Fountains:**
Water-waste preventing valves for drinking, Connell, 2274.
Portable or table, Clark (*Wenck & Briesen*), 2690.
For counter or table use for drinking purposes, White, 3304.

**Frames (picture).** *See* "Pictures."

**Freezing machines.** *See* "Refrigerating."

**Fresco carpets.** *See* "Felt."

**Friction-meters:**
For testing action of lubricants, &c., Napier, 1040.

**Frightening birds.** *See* "Scaring."

**Frills.** *See* "Trimmings."

**Fringes.** *See* "Trimmings."

**Fringing machines.** *See* "Sewing."

**Frisettes.** *See* "Hair-dressing."

**Fronts; false fronts.** *See* "Shirts."

**Fruit.** *See* "Preserving food."

**Fruit (protecting from birds).** *See* "Scaring."

**Fuel (artificial, solid and compound):**
Obtaining, disintegrating, moulding, &c. peat, Dudgeon, 22.
Combining foul lime with coke, oils, &c., Forbes, 28.
Combining foul lime with coke, oils, &c., Forbes, 34.
Excavating, drying and pressing peat, Lake (*Griffin*), 212.
Combining lime, lime-stone and chalk with tar, Forbes, 231.
Sewage, combined with gas tar, &c., Lowe, 326.
Moulding and compressing coal dust and slack, Hahn, 360.
Charcoal and clay mixed with dung or peat, Corbett, 568.
Combining chalk or foul lime with salt, &c., Forbes, 800.
Powdered charred peat, Barff & Kidd, 971.
Perforating blocks of, Marriott (*Duley*), 976.
Drying peat and other, Radcke, 1032.
Peat, for smelting, &c., Lyttle, 1096.
Preparing and moulding peat, Imray (*Hays*), 1104.
Utilising foul lime in making, Forbes, 1200.
Residuum of shale, coal, &c. in gas making, Moule, 1260.
Mixing & moulding peat, &c. with culm or coal dust, Page, 1280.
Moulding and compressing, Healey, 1315.
Pulping and drying peat, Radcke & Smyth, 1355.
Treating small coal, coke or peat, Williams, 1408.
Combustible composition for, Jacobs & Munt, 1504.
Obtaining and preparing peat, Knowles, 1547.
Grinding coal for dust, Willans, 1612.
Of sewage deposits, &c. ("Anticoal & Firelight"), Alsing, 1689.
From "sludge" in clarifying sewage, &c., Goodall, 1826.
For use in making artificial manure, Hughan, 1959.
Moulding and pressing, Harcourt, 1961.
Macerating, moulding and drying peat, Danchell, 2048.
From small coal, &c. and waterproofing same, Kingsford, 2142.
Moulding and pressing, Barker, 2252.
Vegeto-mineral coke, Clark (*Jenty*), 2270.
Coke, for underground locomotives, Breckon, 2287.
Moulding and compressing, Lewis & Jones, 2309.
From sludge or sedimentary matter of sewage, Lyttle, 2446.
Excavating and drying peat for, Lake (*Griffin*), 2480.
For smelting iron-stone, heating furnaces, Aitchison, 2494.
Cement for binding or moulding, Murdoch (*Roettger*), 2533.
Crushing, "rending," moulding and compressing, Clubley, 2534.
Drying peat for making, Jensen (*Mault*), 2543.
Pulping, drying and converting peat, Monckton, 2581.
Utilising and applying sawdust & shavings as, Hodson, 2701.
From peat, &c. for smelting, &c., Byron (*Lester*), 2751.
Preparing, moulding, pressing and grooving, Bolton, 2935.
Mixing, moulding and compressing small coal, Luke, 2995.
Saturating chalk, &c. with petroleum, Punshon, 3200.

**Fuel (artificial, solid and compound)—*cont.***

Combining chalk with salt, saltpetre, &c., Forbes, 3232.
Extracting moisture previous to moulding, Griffiths, 3233.
Regulating pressure in moulding presses, Griffiths, 3233.
Heating & mixing materials in making, Heath & others, 3446.
Carbonised tan, Murdoch (*Honnaij*), 3583.
Moulds for and solidifying small coal, Kingsford, 3728.
Arranging double moulding presses, Yeo, 3823.
Inodorous and smokeless, from coal dust, &c., Barker, 3870.
Using raw or unburnt Portland cement as, Forbes, 3876.
From slack, &c. mixed with gummy matters & oil, Dixon, 3880.
Smokeless, for metallurgical operations, &c., Dixon, 3880.
Kiln for drying and coking coal dust, &c. for, Lyttle, 4030.
Perforated coal-bricks, Bonneville (*Oustalet*), 4206.
Mould for making coal-bricks, Bonneville (*Oustalet*), 4206.
Preparing and treating peat, Davies & others, 4338.
From residuum in making gas, Johnson (*Moreau*), 4387.
From combined peat and chalk, Stevenson & Hart, 4483.

**Fuel (fire-lighters):**

Making fan or star-shaped, Hedley, 123.
Using refuse substances and making, Wadsworth, 1046.
Combustible composition for, Jacobs & Munt, 1504.
From peat, Danchell, 2048.
Machine for cutting or cleaving, Glover, 2638.
Making coal-bricks for, Bonneville (*Oustalet*), 4206.
From peat, Davies & others, 4338.

**Fuel (gaseous):**

Hydro-carbon vapour, Benson (*Morris & others*), 64.
From waste gases of furnaces or cupolas, Aitken, 576.
Apparatus for generating, Johnson (*Hirsch*), 594.
Apparatus for making, Jensen (*Erichsen & Maardt*), 1072.
Carbonic oxide gas, Knowles, 1550.
Apparatus for generating, Sutherland, 1784.
For heating retorts in distilling shale or coal, Bell, 1824.
Carbonic oxide evolved in reducing iron ores, Hunter, 1838.
Utilising waste gases of boiler furnaces, Russell, 1962.
Carbonic acid mixed with hydrogen gas, &c., Hanssen, 2749.
Carbonic oxide and mixtures of same, Hanssen, 2749.
For combined air, steam and caloric engines, Marchant, 3189.
For steam and other engines, Marchant, 3190.
Utilising waste gases from cement kilns, &c. as, Gard, 3502.
Waste gases from kilns used in making iron, Lyttle, 4080.

**Fuel (saving).** *See* "Furnaces," "Fireplaces," "Ovens," "Smoke, &c."

**Fuel-engines.** *See* "Air and gas engines."

**Fuller's earth:**

Ground lithomarge as a substitute, Willans, 1612.

**Fulling:**

Paste containing silicate for, Smith, 1002.
Substitute for fuller's earth (lithomarge), Willans, 1612.
Stopping & starting milling machines, Kilburn & Gooder, 3980.

**Fumes (condensing).** *See* "Condensers."

**Fumigating.** *See* "Perfuming."

**Fungus growths (destroying).** *See* "Plants."

**Furling sails.** *See* "Ships' sails."

**Furnaces and cupolas (metallurgical):**

Combining steam-boilers with, Dudgeon, 20.
Heating blast and puddling, Benson (*Morris & others*), 64.
Consuming smoke and economising fuel, Crosland, 151.
Constructing and cooling rotating puddling, Alleyne, 161.
Constructing and applying thermo-electricity to, Monckton, 265.
For reducing iron ores, Kyte (*Wilson*), 339.
Lining and supplying air to puddling, Horrocks, 352.
For iron & other alloys, Browne (*Foundries & Forges Co.*), 422.
Asbestos mortar for fettling, Hyatt, 478.
Working blast engines by compressed air, Johnston, 531.
Preventing escape of heat in cupolas, Haigh & Bleasby, 556.
Constructing and collecting products from, Aitken, 576.
Economising working of blast, Aitken, 576.
Hot blast-engine, Johnson (*Hirsch*), 594.
For carbonising scrap iron, Kirkwood & Smith, 609.
Collecting fumes evolved in melting, Muntz & Sharp, 667.
Hollow bed plates for puddling, Newton & Newton, 677.
Arranged to purify molten metal and save fuel, Stone, 714.
For smelting and saving fuel ("duplex furnace"), Lyttle, 749.
Carrying wheels of revolving ball, Carrick & Wardale, 786.
Using anthracite in reverberatory, Willans, 1038.
For equalising heat on pots in melting steel, Lewis, 1045.
Utilising waste heat and saving fuel in, Lewis, 1045.
Iron and steel reverberatory, Day (*Henderson*), 1267.
Mechanical puddling, for cast steel, Johnson (*Pernot*), 1317.
Working blast furnaces by compressed air, Johnston, 1332.
Puddling and reheating, Newton (*Houdart & Co.*), 1349.

**Furnaces and cupolas (metallurgical)—*cont.***

Cupola and blast, Millward (*Richardson*), 1387.
Plaster or cement for lining cupolas and blast, Horne, [illegible]
Burning petroleum in smelting, Rawson (*d'Homergue*), [illegible]
Melting, refining and puddling; saving fuel, Stone, 1546.
Regenerative ("Cowper's stoves"), Cochrane & Cowper, [illegible]
Portable, for melting and refining, Johnson (*Baxter*), 1677.
Smelting or puddling, for saving fuel, Jensen (*Aper*), [illegible]
For converting pig iron, &c. into wrought iron, Hunt, 1683.
Machine puddling, smelting, &c.; saving fuel, Stanley, 1729.
Arranging blast, Hedderwick, 1752.
For burning gaseous fuel & supplying same, Sutherland, [illegible]
For heating, reheating, tempering, &c., Robertson, [illegible]
For deoxidising and reducing iron ores, Hunter, 1838.
For reducing iron and other ores & saving fuel, Wheeler, [illegible]
For making iron and steel, Johnson (*Peckham*), 1858.
Heating, by oil-gases from boiler furnaces, Russell, 1962.
Mechanical puddling; saving fuel, Johnson (*Pernot*), [illegible]
For rotatory puddling machines, &c., Lester & Falkowa, [illegible]
Promoting combustion in, to save fuel, Redish, 2055.
Heating air in and for, Bainbridge & Pinkney, 2112.
For welding, Tasker, 2203.
Hot-blast, for smelting, &c., Lake (*Essex*), 2259.
Utilising gases from blast, Lloyd, 2283.
Regenerative puddling, with rotating beds, Alleyne, [illegible]
For reducing ores of manganese, &c., Ireland, 2395.
Fire-clay bricks, powder and cement for, Holland, 2476.
Constructing regenerator, Abel (*Foster*), 2488.
Fuel, to eliminate impurities, &c. in, Aitchison, 2494.
Air-heaters for melting, Gedge (*Lepet & Co.*), 2514.
Moveable sole plate for melting, Gedge (*Lepet & Co.*), 2514.
Supplying and burning sawdust & shavings in, Hodson, [illegible]
Mechanical feeder and operating fire-bars, McDougall, [illegible]
Removing slag and consuming smoke, McDougall, [illegible]
Supplying air to consume gases and save fuel, Wood, 2914.
Arranging fuel chamber and blast nozzles, Lyttle, 2959.
Combined, for melting, refining and puddling, Evans, 2631.
Smokeless, lighted from the top, Blazicek & Bauer, [illegible]
Hollow fire-bars and flues for heating air for, Dessuine, [illegible]
For reducing iron ores without fusion, Lyttle, [illegible]
Rotating annular beds for, Schofield, 3025.
For smelting ores and melting, Plum, 3118.
Flues and dampers for wire annealing oven, Littlewood, [illegible]
For roasting ores, Clark (*Heiligendorfer*), 3259.
Making "dead plates" for muffle, Darlaston & Hawkins, [illegible]
Puddling, Henderson, 3314.
Heating air for consuming gases in, Stirling & Peacock, [illegible]
Fixing apparatus to, for operating rabbles, Foulis, [illegible]
Utilising waste gases from blast, Barclay, 3488.
Heating and depriving air of moisture for, Barclay, [illegible]
Steam jet blower for supplying heated air to, Korting, [illegible]
Jet exhauster for increasing draught, Körting, 3507.
Utilising heat and saving fuel, Korting, 3507.
Producing currents of air in blast, Johnson, 3545.
Preventing slag, &c. accumulating in "Siemens," Parry, [illegible]
Hopper & meter for feeding compounds, Freeston & [illegible]
Rotating fire-bars for puddling and other, Bloomer, [illegible]
Consuming smoke and saving fuel in, Jowett & Hunter, [illegible]
Portable, for conveying molten metal, Stone, 3753.
Tuyeres for forges, blast, refinery and other, Lloyd, [illegible]
Puddling, balling, heating & annealing, Smyth & Simpson, [illegible]
Refractory material for lining, Smyth & Simpson, 3840.
Mechanical puddler, Smyth & Simpson, 3840.
Water bosh, tymp and tuyere alarm, Jones & Thomas, [illegible]
Indicating leakage from water tuyeres, Darby & Green, [illegible]
Preventing notch of dam deepening, Darby & Green, [illegible]
Pneumatic apparatus for blast, Richardson, 3866.
Blast vacuum furnace, Smyth & Simpson, 3881.
Puddling, balling and heating, Smyth & Simpson, [illegible]
Self-acting mechanical puddler, Smyth & Simpson, [illegible]
Rotary puddling, Jones & Jones, 4122.
Air compressing engine for, Walker & Pflaum, 4129.
Saving fuel and consuming smoke in, Regan, 4216.
Endless chain grate bar self-feeding, Regan, 4218.
Transverse joggle grate bar, Regan, 4218.
Smelting, refining, blast heating and ore drying, Stone, [illegible]
For making charcoal iron, Bonneville (*Eames*), 4346.
Hydro-carbon vapor burner for, Bonneville (*Eames*), [illegible]
Rotary puddling machines, Johnson (*Sellers & Sellers*), [illegible]

**Furnaces (miscellaneous):**

Combining steam-boilers with, Dudgeon, 20.
Hollow fire-bars and scraper for, Cain, 56.
For obtaining potash and soda, Murdoch (*Lesage*), 97.
Water fire-bars, Newton, 106.
Consuming smoke and economising fuel, Crosland, 151.
Utilising waste heat from baking ovens, Lewis & Wood, [illegible]
Lamp black, Clark (*Rogers*), 208.
Utilising waste heat from, Imray (*Blair*), 308.
Adjustable grate for, Clark (*Casement*), 331.
Suspending heated media in, Clark (*Casement*), 331.
Lining and supplying air to, Horrocks, 352.
Grooved fire-bars for dry ash, alkali and other, Newton, [illegible]
Heating, saving fuel and consuming smoke, Dearman, [illegible]
With solid hearths, Brook & Wilson, 427.
For heating buildings, Newton (*Babbitt*), 459.

**Furnaces (miscellaneous)—*cont.***

Fire-bars, &c. for retort, McBeath, 601.
Lining doors of, Cockey & Cockey, 624.
Bisulphide of carbon, Johnson, 687.
And fire-bars for heating retorts, Somerville, 733.
Lining compound to save fuel in, Batstone & Batstone, 745.
Consuming smoke and gases in; saving fuel, Kirtley, 765.
For heating retorts, Warner, 864.
Arranging fire-bars to save fuel, Dick (*Schmitz*), 926.
For burning powdered charred peat fuel, Barff & Kidd, 971.
For "coppers" and "stills," Milburn & Jackson, 1006.
For oil-gas retorts, Keith, 1064.
Regenerative and other gas, Nuttall, 1079.
Consuming smoke in, Smith, 1092.
For coking powdered peat or coal, Lyttle, 1096.
For hot-air balloons, Ménier, 1144.
Mechanical stoking, Butcher, 1257.
Alkali, McDougall, 1311.
Glass and other, Newton (*Houdart & Co.*), 1349.
Causing down draught in, to consume smoke, &c., Whitaker, 1358.
Supplying air to glass, Millward (*Richardson*), 1387.
For evaporating soda lye, &c. to save fuel, Stevenson, 1469.
Hot-air engine, Gottheil (*Berlin-Anhalt Machine Co.*), 1565.
Regenerative ("Cowper's stoves"), Cochrane & Cowper, 1623.
General construction of, to save fuel, Jensen (*Ayer*), 1680.
For retorts, evaporating pans, &c., to save fuel, De Pindray, 1719.
Pendulum damper for regulating supply of air, Fryer, 1774.
Heating air to promote combustion and save fuel, Dennis, 1797.
Combustion plates or inducers and fire-bars for, Redish, 2055.
Heating air in and for, Bainbridge & Pinkney, 2112.
Decomposing, for gas-making, Lake (*Harkness*), 2169.
Preventing smoke in, Waugh, 2256.
Increasing heat and consuming smoke in glass, Percival, 2345.
Emptying animal charcoal, Wirth (*Langen*), 2360.
Automatically controlling air-supply to, Rowland, 2379.
Arranging, for rendering fats, &c., Lake (*Firman*), 2419.
Self-acting dampers for; saving fuel, Eastwood & others, 2485.
For drying and charring peat, Monckton, 2581.
For heating air for drying, boiling, &c., Taylor, 2626.
For hot-water heating apparatus, Harlow, 2683.
For boilers of hot-water apparatus, Wagstaff, 2700.
Using waste heat from coke, for drying sewage, Bennett, 2710.
Mechanical feeder and operating fire-bars, McDougall, 2759.
Removing clinker and consuming smoke, McDougall 2759.
For tempering glass, Royer de la Bastie, 2783.
For use in making sulphuric acid, De Hemptinne, 2807.
Supplying air to consume gases and save fuel, Wood, 2814.
Arranging fuel chamber and blast of alkali, &c., Lyttle, 2930.
Arranging, for consuming smoke and saving fuel, Eddison, 2967.
Arranging burners in, Silber, 2968.
Smokeless, lighted from the top, Blazicek & Bauer, 2973.
Hollow fire-bars and flues for heating air for, Deguine, 2983.
Rotating annular beds for alkali and other, Schofield, 3025.
Tank furnaces for smelting glass, Kilner, 3128.
Circular or rotating, for salt pans to save fuel, Barrow, 3139.
For gas producing, Kidd, 3174.
Cleaning or clearing fire-bars, Hirschmann (*Philipp*), 3210.
Supplying air loaded with water to, Lake (*Jasper*), 3215.
Dead plates; saving fuel, Darlaston & Hawkins, 3292.
Destroying noxious gases from, Bowen & Miller, 3324.
Heating air for consuming gases in, Stirling & Peacock, 3419.
Purifying gases or vapors from, Gard, 3502.
Steam jet blower for supplying heated air to, Körting, 3507.
Jet exhauster for increasing draught, Körting, 3507.
Utilising heat and saving fuel, Körting, 3507.
Preventing slag, &c. accumulating in "Siemens," Parry, 3559.
Refractory material for flues of, Horne, 3641.
Rotating fire-bars, Bloomer, 3683.
Consuming smoke and saving fuel in, Jowett & Hunter, 3739.
For drying and evaporating stoves or chambers, Perry, 3827.
Preserving bridges of tank, for melting glass, McAdam, 3949.
Preserving bridges of tank glass, McAdam, 4028.
Doors with air aperture and baffle plates, Salmon, 4107.
Revolving disc fire-bars and coke chamber for, Salmon, 4107.
For generating hot gaseous products, Fyfe & Bowers, 4112.
Endless chain grate bar self-feeding, Regan, 4218.
Saving fuel and consuming smoke in, Regan, 4218.
Transverse joggle grate bar, Regan, 4218.
Forming and rocking fire-bars, Lake (*Wiegand*), 4316.
Grates (Ætna and Ætna self-slicing), Lake (*Wiegand*), 4316.
Grates, grate-bars and operating same, Ryder, 4456.

**Furnaces (steam-boiler):**

Economising fuel and utilising waste heat in, Lancaster, 32.
Fire bars; removing and discharging clinkers, Lancaster, 32.
Mechanical stoker, Lancaster, 32.
Adjustable grate for, Clark (*Casement*), 69.
Burning fuel and consuming smoke in, Clark (*Casement*), 70.
Arrangement of marine, Macnab, 127.
Consuming smoke and economising fuel in, Crosland, 151.
Obtaining more perfect combustion in, Lister, 280.
Combustion chambers; saving fuel, Howard & Bousfield, 331.
Adjustable grate for, Clark (*Casement*), 351.
Suspending heated media in, Clark (*Casement*), 351.
Lining and supplying air to, Horrocks, 352.
Blast, for steam-ships; feeding & saving fuel, Friedmann, 373.

**Furnaces (steam-boiler)—*cont.***

Fire-box shells and arranging tubes in, Blake, 396.
Heating, saving fuel and consuming smoke in, Dearman, 397.
With solid hearths, Brook & Wilson, 427.
Adapting, to burn straw, &c., Marshall, 460.
Heating vertical, Hedges, 463.
Promoting combustion in, Baxter, 482.
Arrangement of, for central rail locomotives, Adorno, 512.
Fire-boxes for generating steam, Buckingham, 551.
Mechanical stoker, Smith & others, 569.
Regulating draft to consume smoke & save fuel, Morton, 588.
Self-feeding, to prevent smoke, Rydill, 637.
Self-stoking, to save fuel, Vicars & others, 669.
Lining and using sides as feed-heaters, Wilke, 672.
Hollow fire-bars for heating feed-water, Chatterton, 852.
Fire-bars, "flat stoking iron" and "key spanner," Martin, 880.
Constructing fire-box sides of pipes, Newton (*Kelly*), 903.
Fire-bars; arranging and fixing same, Arnold, 940.
Arranging cylinders in, to superheat steam, Harper, 951.
Fire grate of grooved rollers, Milburn & Jackson, 1006.
Tubes or conduits for supplying heated air, Hathaway, 1030.
Hollow fire-bars, &c. for heating feed-water, Dawber, 1070.
Supplying gaseous fuel, Jensen (*Erichsen & Maardt*), 1072.
Preventing smoke & saving fuel, Hillcoat & Montgomery, 1083.
Supplying hot air to save fuel, Howatson, 1088.
Fire-bars; stirring and removing ash, &c., Thompson, 1103.
Fire-bars to prevent clinker and save fuel, Plummer, 1112.
Consuming or preventing smoke in, Jones, 1115.
Making, mounting and setting fire-bars, Dodge & Coles, 1122.
Fire-bars and bearings for same, Stephenson & Pickup, 1204.
Supplying heated air to save fuel, &c., Schallehn (*Stamer*), 1217.
Mechanical stoking, Butcher, 1257.
Increasing heat and consuming smoke, Lake (*Renshaw*), 1300.
General construction of round shell, Clark (*Haswell*), 1339.
General construction, Newton (*Houdart & Co.*), 1349.
Arranging water tubes in, Millward (*Richardson*), 1387.
Supplying heated air to, Millward (*Richardson*), 1387.
Controlling draft in, Johnson (*Denio & Lobdell*), 1409.
Grate bars; removing ashes, Johnson (*Denio & Lobdell*), 1409.
Burning petroleum in, Rawson (*d'Homergue*), 1448.
Covering for, Mann (*Risien*), 1466.
Promoting combustion and saving fuel in, Sanders, 1522.
Tram-car locomotive, Todd, 1533.
Introducing fuel at bottom of, Hyde, 1616.
Regulating draft & combustion; saving fuel in, Dingley, 1675.
General construction of, to save fuel, Jensen (*Ayer*), 1680.
For economical combustion of fuel, De Pindray, 1719.
Pendulum damper for regulating supply of air, Fryer, 1774.
Water-bars, arranging tubes in and for, Vicars & others, 1796.
Utilising waste heat from, Crosland, 1814.
Consuming smoke in, Macfarlane & Macfarlane, 1825.
To consume smoke and save fuel, Campbell & Gemmill, 1895.
Regulating draft in, Sauvée (*Déchamp*), 1917.
Utilising, storing and applying gases from, Russell, 1962.
Burning fuel under pressure in, and feeding, Russell, 1962.
Combining tubular water & solid rocking bars, Newton, 1972.
Securing and cleansing tubular water-bars, Newton, 1972.
Preventing and burning smoke in, Nimmo, 1980.
Utilising waste gases in, Black & Leiper, 2013.
Saving fuel and consuming smoke in, Black & Leiper, 2013.
Supplying air to and utilising gases from, Wilson, 2042.
Combustion plates or inducers and fire-bars for, Redish, 2055.
Arranging spherical boiler, Lloyd, 2069.
Constructing, to form mixing chamber, Outram & Horton, 2080.
Heating air in and for, Bainbridge & Pinkney, 2112.
Mechanical stoker; fire-bars; saving fuel, Smith, 2148.
Regulating draft to, Sanderson & Co., 2161.
Producing draft in, Gedge (*Chevallier*), 2176.
For rectangular steam-boilers, Northcott, 2205.
Increasing draught in, Plunkett, 2233.
Preventing smoke in, Waugh, 2256.
Arranging heaters in, to save fuel, Lloyd, 2283.
For raising steam rapidly, &c. and saving fuel, Spartali, 2367.
Automatically controlling air-supply to, Rowland, 2379.
Walls, acting as smoke consumers, Johnson (*Lobdell*), 2384.
Supplying hot-air to, to save fuel, &c., Jolly, 2440.
Saving fuel in, by the use of clay, &c., Cochrane, 2445.
Self-acting dampers for; saving fuel, Eastwood & others, 2485.
Using waste gas for reheating steam, Abel (*Roberts*), 2516.
Widening locomotive fire-boxes, Jensen (*Asplund*), 2522.
Consuming smoke in, Newton (*Michelsen & others*), 2525.
Gas-apparatus for heating boilers, Straten, 2526.
Constructing, &c. locomotive boiler, Oswald & Oswald, 2612.
Supplying and burning sawdust and shavings in, Hodson, 2701.
Dampers for and consuming smoke in, Wrigley & others, 2756.
Mechanical feeder and operating fire-bars, McDougall, 2759.
Removing clinker and consuming smoke in, McDougall, 2759.
Continuous travelling fire-bars for, Cass, 2793.
Mechanical stoker, Henderson, 2812.
Supplying air to consume gases and save fuel, Wood, 2814.
Supplying hot-blast to, & using coal breeze, &c. in, Russ, 2846.
High vertical fuel chamber with forced blast, Lyttle, 2930.
Introducing superheated steam to save fuel, Powleson, 2959.
Arranging, for consuming smoke and saving fuel, Eddison, 2967.
Smokeless, lighted from the top, Blazicek & Bauer, 2973.
Hollow fire-bars and flues for heating air for, Deguine, 2983.

**Furnaces (steam-boiler)—*cont.***

Arranging tubes in and around fire-boxes, Waller, 3017.
Burning air-gas in and regulating fire of, Marchant, 3189.
Burning air-gas in and regulating fire of, Marchant, 3190.
Supplying air loaded with water to, Lake (*Jasper*), 3215.
Heat injector for, Holt, 3226.
Constructing doorway or covering for, Moore, 3244.
Circular fire grates for, Dunlop, 3254.
Regulating draft in, Clark (*Gregory*), 3258.
Regulating blast in, Messrs. McNaught, 3264.
Domed fire-box without rivets or joints, Marriott, 3290.
Constructing "dead plates," Darlaston & Hawkins, 3292.
For burning either straw or coal, Hornsby & Scott, 3294.
Heating air for consuming gases in, Stirling & Peacock, 3419.
Forming fire-places to do away with bridges, Arnold, 3501.
Steam-jet air compressor for supplying air, Körting, 3507.
Jet apparatus for increasing draft in, Körting, 3507.
Utilising heat and saving fuel in, Körting, 3507.
Arranging, for steam and hot-air engines, Clark (*Samuel*), 3536.
Internal cylindrical fire-box for, Matthews, 3586.
Rotating fire-bars for, Bloomer, 3683.
Regulating draft & saving fuel in, Lake (*Cooke & Foss*), 3712.
Consuming smoke and saving fuel in, Jowett & Hunter, 3739.
Mechanical stoker and shovelling apparatus, Bennis, 3783.
Fire-boxes of portable engines, Hughes, 3787.
Heating air for and consuming gases in, Cook, 3890.
Placing perforated fire-bricks or lumps, &c. in, Cook, 3890.
Applying dampers for regulating draft, Cook, 3890.
For heating heaters for locomotive boilers, Weston, 3914.
For providing hot-water for boilers and tenders, Weston, 3914.
Feeding forward fuel and clearing bars, Moffatt & others, 4040.
Mechanical stoker and adjustable grate for, Péne, 4047.
Regulating draft, saving fuel and consuming gases, Péne, 4047.
Widening locomotive fire-boxes and, Jensen (*Asplund*), 4048.
Doors with air aperture and baffle plates, Salmon 4107.
Revolving disc fire-bars and coke chamber for, Salmon, 4107.
Heating air for, Lacordaire (*Fourlinnie*), 4168.
Generating, storing and applying gases, Russell, 4177.
Cleaning furnace gases, Russell, 4177.
Feeding solid fuel into, against pressure, Russell, 4177.
For burning straw and light fuel, Morgan (*Elworthy*), 4188.
Transverse joggle grate bar for, Regan, 4218.
Air-supplying to and saving fuel in, Regan, 4218.
Automatically controlling dampers of, Royle, 4237.
Consuming smoke and saving fuel in, Gedge (*Duboin*), 4301.
Supplying hot-air to, to save fuel, Cheesbrough (*Ford*), 4381.
Supplying hot-air to, to save fuel, Cheesbrough (*Ford*), 4383.
Regulating supply of air to, Prideaux, 4440.
Grates, grate-bars and operating same, Ryder, 4456.
For burning straw and light fuel, Marshall & Lister, 4467.

**Furniture:**

Folding or telescopic bedstead, Cotter, 1.
Convertible school desks and seats, Eyre, 164.
Stationery cases, Van Dyk, 199.
Deodorising and filtering chairs for invalids, Synge, 254.
Reclining chairs, Summerford, 335.
Sewing-machine cabinet, Clark (*Tracy & Lawton*), 363.
Combining fire-escapes with articles of, Isaacs, 388.
Folding chairs, seats, tables and butlers' trays, Goulding, 405.
Folding music stands, reading or writing desks, Goulding, 405.
Tables with glass and veneered tops, Bonneville (*Leeb*), 471.
Invalid bedsteads, Clark (*Cosby*), 579.
Working revolving tools for cabinet work, Egerton, 617.
Waterproof mastic for coating, joining, &c., Bageau, 649.
Invalid bedsteads, Warner & Stanton, 775.
Combined table, desk, easel and drawers, Camp (*Knight*), 858.
Adjusting operating chairs, invalid couches, &c., Oclee, 925.
Fireproof composition for, Muratori, 931.
Mess tables and seats for ships, Dewar, 1105.
Tables for invalids, &c., Barnard, 1107.
Metallic tubes for bedsteads, Bourne, 1172.
Springs for, Clark (*Doremus*), 1410.
Lining for wardrobes, Rowan & Reid, 1507.
Ornamenting plaques for adorning, Brook, 1563.
Extension tables, Sawyer (*Osgood*), 1593.
Attaching or connecting handles to, Garrad, 1739.
Producing plates for ornamenting, Placet, 1807.
Card table, Smith, 1809.
Combined bedstead, table, seats, shelves & box, Ritchie, 1906.
Portable desks, Watson, 1907.
Magnetising chairs, couches, &c., Lyon, 1954.
Turn up bedstead, Johnson (*Everitt & North*), 1990.
Decorating, by transfer printing, Fawcett, 2000.
Compound material for and mode of making, Brannon, 2027.
Elastic suspension springs for, Johnson (*Le Luyer*), 2064.
Convertible box, table, bedstead, &c. for tents, Ritchie, 2275.
Joint for securing drawer knobs, &c., Clissold, 2285.
Adjusting chair for dentists, barbers, &c., Golden, 2326.
Reading desks, Mudge, 2341.
Combined bedstead, packing case, trunk, &c., Turner, 2484.
Fitting hammocks, cots and bedsteads, Turner, 2484.
Springs for sofas, chairs, &c., Corroyer (*Desoutter*), 2535.
Making oil-printing blocks for decorating, Durand, 2656.
Adjustable writing desks and tables, Schildberg, 2677.

**Furniture—*cont.***

Strengthening framework of iron bedsteads, Welch, 2714.
Ship's cots or berths, couches and hammocks, Haughton, 2748.
Stationery cabinets, Guy & Co., 2803.
Ventilating flue mouths for bedsteads, &c., Roberts, 2843.
Folding dining and other tables for schools, &c., Cameron, 2852.
Tables, Jones, 2889.
Spring bed bottoms, Miller, 2964.
Using glass for tables and other articles of, Hartley, 3064.
Cabinets for stationery, Physick, 3094.
Folding tables, seats, desks, bedsteads, &c., Cameron, 3294.
Securing knobs on drawers, &c., Harland, 3303.
Adapting small table-tops for advertising, Brownlie, 3308.
Making and ornamenting rails of metallic, Atkins, 3465.
Pocket stools, portable tables, &c., Gedge (*Granjon*), 3489.
Combined seat and copying press, Tongue (*Betting*), 3540.
Convertible desks and tables for schools, &c., Cameron, 3614.
Combined chair and table for children, Dubbin, 3874.
Garden seat covers, Pulvermacher, 4064.
Invalid bedsteads, Jack, 4097.
Portable trellis work for seating, Stevenson, 4220.
Writing desks or frames for the blind, &c., Thursfield, 4330.
Ornamenting, Clark (*Ulmann*), 4356.

**Furniture casters.** *See* "Casters."

**Furniture coverings.** *See* "Upholstery."

**Fusees and cigar lights.** *See* "Matches."

**Fuses:**

For blasting, Daddow, 1558.
Circular braiding machine for making, James, 4261.


## G.


**Gaiters.** *See* "Leggings."

**Galenite.** *See* "Metallic salts."

**Galoon.** *See* "Trimmings."

**Galvanism.** *See* "Electricity."

**Game (preserving as food).** *See* "Preserving food."

**Games and exercises:**

Portable tennis court, Wingfield, 683.
Billiard table, Brock, 963.
Cover for billiard tables, Rowan & Reid, 1507.
Covering croquet and other balls with metal, Webster, 1546.
Polishing, &c. checker-men, Haseltine (*Isbell*), 1632.
Billiard registering and indicating apparatus, Beck, 1668.
Puppet show or "Punch and Judy" set to cards, Cowell, 1684.
Recreative machine for viewing objects, &c., Weems, 1720.
Card table and duplex scoring apparatus, Smith, 1809.
Billiard, &c. marking and registering apparatus, Ollis, 2134.
Using glass for billiard and bagatelle tables, Hartley, 3064.
Mechanical hobby horses and toy carriages, Bodel, 3215.
Applying perambulators to swings, Simpson & Fawcett, 3274.
Puzzle game ("The Spanish Question"), Borde, 3363.
Pseudo-cannon for gymnastic performances, Mayol, 3614.
Indicating and recording mechanism, Colles & Bailey, 3827.

**Garden implements:**

Hydronettes, hand pumps and syringes, Robins, 23.
Combined hoe, rake and path-cutter, Clark (*McKinley*), 63.
Lawn-mower, Schlesinger, 2215.
Machine for cutting grass plot edges, Holt & Dawes, 2230.
Apparatus for watering lawns, Hall & McLeish, 2253.
Lawn-mowers, Schlesinger (*Williams*), 2340.
For lopping branches of trees and shrubs, Walton, 2373.
Clipping or cutting grass edges, Green & Burrows, 2386.
Combined fire and garden engine, Foster, 2969.
Double-acting garden pump or engine, Druce, 3069.
Machine for carrying watering hose, Barton, 4053.

**Garden seats.** *See* "Furniture."

**Garments for gentlemen.** *See* "Wearing-apparel."

**Garters:**

Friction buckles for, Dethiou, 542.
Fastenings for, Hathaway, 2302.

**Gas and other burners:**

Argand or ring, Farquhar, 112.
Argand or circular, Hearson, 167.
Mushroom and ring, Gedge (*Liotard*), 242.

**Gas and other burners—*cont.***

Porous asbestos for burning gas in stoves, Hyatt, 478.
For rotary and other gas-engines, Ford, 466.
For apparatus in carbonising iron, Kirkwood & Smith, 609.
Reflectors, shades and smoke arrestors for, Siebert, 622.
Steadying the flame of, Siebert, 622.
Constructing, arranging and coating, Landau, 768.
Stand or holder applied to, for warming liquids, Myers, 851.
For oil lamps, Rippingille, 920.
Applying wire gauze to circular and other, Hendrix, 1011.
Liquid fuel burners for hot-air balloons, Ménier, 1144.
Regulating burner for lamps, Callaghan, 1197.
Cooling burners of coal oil stoves, Lake (*Thorp*), 1264.
For oil-lamps, Kauffmann (*Klesmann*), 2008.
Regulator for sun-light and other, Lack, 2049.
For hydro-carbon oil lamps, Defries, 2166.
Applying aluminium rings to Argand, Newton (*Welch*), 2197.
Supporting chimneys and shades, Newton (*Welch*), 2197.
Constructing, to moderate and regulate supply, Tackels, 2220.
For gassing yarns and fabrics, Manchester & Turner, 2311.
Preventing flickering at, Cooper, 2404.
For singeing yarns, Warburton, 2463.
For burning air and gas for heating purposes, Straten, 2526.
For carburetted hydrogen gas, Newton (*Tesorieri*), 2569.
Mineral oil lamp, Wise (*Lafaurie & Potel*), 2650.
For oil lamps and heating apparatus, Baudelot, 2691.
Arranging, in lamps with raising gallery, &c., Aronson, 2878.
For lamps and heating apparatus, Silber, 2968.
For heaters, generating gases, &c., Waller, 3017.
Double, for oil and vapour lamps, Clark (*Granier*), 3086.
Shadowless burners for oil lamps, Clark (*Granier*), 3145.
Chalk burners saturated with petroleum, Punshon, 3200.
Bunsen and compound or multiple, Wallace, 3318.
Flat burner and ventilator for gassing frames, Wallace, 3318.
Burner apparatus for heating articles, McKay, 3460.
For railway carriage, signal and other oil lamps, Smith, 3473.
Burners and fittings of "nickelised" iron, Monckton, 3509.
Regulator for sun-light and other, Lack, 3611.
Fuse & ignition mechanism, &c. for, Chandor (*Leonard*), 3717.
For box irons heated by gas, Hollands & Cubitt, 3741.
Composite and acoustic, for pyrophones, Clark (*Kastner*), 3879.
Argand and other, Sugg, 4227.
Supporting half globes or reflectors on open, Weston, 4239.
Hydro-carbon vapor for smelting, Bonneville (*Eames*), 4546.

**Gas cocks.** *See* "Cocks."

**Gas engines.** *See* "Air and gas engines."

**Gas (lighting and extinguishing):**

In gassing yarns, Rhodes, 1073.
Self-acting system, Dann (*Flürscheim & Baumeister*), 1983.
Electric pneumatic apparatus for, Bean, 2380.
By alteration of pressure in mains, Chiverton, 2506.
Lamps when locked by electricity, Teale, 2914.
Safety hand oil lamps for, Whitworth, 3070.
Clock-work mechanism, &c. for street lamps, Trotter, 3404.
By electro-magnetism and electricity, Jones & White, 3511.
Torch and mechanism for lighting, Chandor (*Leonard*), 3717.
Fulminate and apparatus, Newton (*Stockwell & others*), 3782.
By varying the pressure in the main, Munford, 4404.

**Gas (making):**

From crude mineral and fish oils, Lamont, 3.
Portable oil-gas apparatus, Lamont, 3.
Oil-gas, Forbes, 26.
Carbon gas, Benson (*Morris and others*), 64.
Gas-holder, Jensen (*Erichsen & Edwards*), 138.
Retort charging apparatus, Foulis, 153.
Compound for purifying, Forbes, 231.
Purifying, Forbes, 232.
Carburetted air; air-gasometers, Vaughan (*Dubois*), 246.
Purifying, Clark (*Pelouze & Audouin*), 322.
Retorts, condensers, scrubbers, &c., Whittingham (*Payne*), 348.
Purifying and carburating, Dewynter (*Lenoir*), 430.
Mixing gas with air to carbonise iron, Webster, 465.
Sealing dip pipes, Caffall & Thomas, 467.
Valves for hydraulic mains in lieu of liquids, Box, 566.
Carburetted air, Richards, 567.
Making and carburetting "water gas," Richards, 567.
Treating coal gas with hydrogen, Richards, 567.
From waste gases of furnaces or cupolas, Aitken, 576.
Carburetted hydrogen, Henry, 589.
Carburetted hydrogen, and retorts, Yarrow, 598.
From shale and bituminous substances, McBeath, 601.
Carburetted air, Holland, 641.
Retort joints, Lake (*Floyd*), 679.
Securing lids of retorts, Braidwood, 697.
Purifying and carburetting coal gas, Weston, 702.
Retorts, furnaces and condensers, Somerville, 733.
From tarry & oily products of gas works & steam, Beck, 766.
Further purifying in gas pipes and burners, Landau, 768.
Compound for making and purifying, Forbes, 800.
Purifying and carburetting gas in lamps, &c., Weston, 810.
Arranging, charging and discharging retorts, Warner, 864.

**Gas (making)—*cont.***

Carburetted air, Hunter, 907.
From waste prussiates of potash and soda, Nield & Foster, 914.
Constructing and working retorts, Newton (*Davison*), 919.
Purifying gas liquor for purifying, Hills, 934.
Carburetting air, Holland, 935.
Cleaning retorts, Ledingham, 1041.
Oil-gas, Jensen (*Erichsen*), 1052.
Portable oil-gas apparatus for ships, &c., Keith, 1066.
Coke ovens and retorts for, Jensen (*Erichsen & Maardt*), 1072.
Regenerative and other furnaces for, Nuttall, 1079.
Utilising foul lime for purifying, Forbes, 1200.
Regulating supply of oil and purifying oil-gas, Thomas, 1211.
From shale, peat, &c. in combination with chalk, Moule, 1260.
Sealing hydraulic mains, Porri & Leigh, 1279.
Condensing, exhausting and purifying, Hulett & Chandler, 1287.
Carburetted air, Muir, 1288.
Refining hydro-carbons for, Muir, 1289.
Combining lime kilns with retorts, Wanchope & Cowan, 1338.
In charring peat or wood, Radcke & Smyth, 1355.
Utilising foul lime to obtain sulphur, &c., Forbes, 1391.
In making metal founders' blacking, Sellars, 1491.
Carbonic oxide gas, Knowles, 1550.
Carburetting apparatus for trains, ships, &c., Lenoir, 1589.
Constructing, fitting, feeding and firing retorts, Bell, 1824.
Carburetted air, Clark (*Cayce*), 1851.
Carburetted air, Howes, 1944.
Carburetted air, Stacey & Lace, 1958.
Mixed steam, air and hydrocarbons, Russell, 1962.
Charging retorts, West, 1978.
Working coal gas purifiers, Walker, 1902.
Sulphuretted hydrogen, Curie, 2079.
Carburetted hydro-carbonic oxide, Lake (*Harkness*), 2169.
Carburetted air, Haseltine (*Brayton*), 2209.
Purifying gas at the burners, Tackels, 2220.
Proto-carburetted hydrogen, Clark (*Jenty*), 2270.
From naphthaline and its congeners, Clark (*Jenty*), 2270.
Carburetted air or gas, Cooper, 2404.
In process of rendering fats, &c., Lake (*Firman*), 2419.
Charging and drawing retorts, Warren & Wates, 2434.
Obtaining sulphuretted hydrogen, Henry (*Faucheux*), 2483.
Retorts for preventing waste in, Newton (*Elmer*), 2495.
Purifying, by means of salt-cake, Johnson (*Silliman*), 2520.
Carburetted hydrogen or air-gas, Clark, 2571.
Scrubbers and condensers for making air-gas, Clark, 2571.
Oil-gas, Forbes, 2572.
Carburetting coal gas, Aitken, 2587.
Combined system of condensers and filters, Aitken, 2587.
Preventing loss of hydrocarbon in coal, Aitken, 2587.
Removing aqueous vapors from coal gas, Aitken, 2587.
Using oil and spirit in tanks of gas-holders, Aitken, 2587.
Self-generating oil-gas stove, Gaukroger & others, 2618.
From waste gases in making prussiates, Nield & Foster, 2624.
Retorts and purifiers; saving fuel, Bowness & Judge, 2632.
Carburetted air, Clayden, 2698.
Carbonic oxide, Haddan, (*Cordurie & Anthony*), 2708.
Carbonic oxide, Hanssen, 2749.
Spraying air with gases or vapors, Smith, 2815.
Hydrogen, for inflating balloons, Baggs, 2821.
Purifiers for, and combined exhauster and agitator, Russ, 2847.
Utilising residues in making coal-gas, Russ, 2847.
Carburetting gases and aëriform fluids, Ramsden, 2920.
Carburetted hydrogen, Lake (*Browne*), 3058.
Portable hydrogen gas apparatus, Lake (*Browne*), 3058.
Sulphuretted hydrogen, Wilkes & Aunier, 3087.
Retorts, Rowbottom, 3095.
From sewage or decomposed matter & hydrocarbon, Bray, 3106.
Furnaces for, Kidd, 3174.
Air-gas for fuel in engines, Marchant, 3189.
Air-gas, Marchant, 3190.
Lime for purifying, Forbes, 3233.
Carburetted air, Malam & Graves, 3240.
Carburetted air, Peacock & Bradley, 3243.
Sealing and unsealing dip pipes, Chandler & Stevenson, 3252.
Carburetted water-gas, Spice, 3269.
Oil-gas, Day (*Eichbaum*), 3281.
Oil and carburetted water gases, Redwood, 3307.
Carburetted hydrogen, Robinson, 3346.
And condensing hydrogen, Beck (*Edgerton*), 3366.
Revivifying oxide of iron, &c. in purifiers, Körting, 3469.
Charging and drawing retorts, Foulis, 3487.
Feeding retorts, Haseltine (*Bothwell*), 3489.
Purifying and utilising gases from cement kilns, &c., Gard, 3502.
Spray apparatus for purifying or washing, Körting, 3504.
Jet blowers for hydrogen gas furnaces, Körting, 3507.
Generating, from wood, peat, &c., Monckton, 3509.
Coking coal, &c. and collecting products, Ormiston, 3560.
From spent tan, Murdoch (*Honnaij*), 3583.
Refractory material for retorts, Horne, 3641.
Retort mouthpieces; lids and hinging same, Holman, 3687.
Consuming smoke in retort furnaces, Jowett & Hunter, 3739.
From sewage sludge, Vallé, 3784.
Carburetting air or gas, Fogarty, 3792.
Working gas machines; arranging gas holders, Fogarty, 3792
Portable hydrogen gas apparatus for balloons, Watt, 3831.
Carbonic oxide, Smyth & Simpson, 3840.

**Gas (making)**—*cont.*
From a mixture of oil and water, Marchant, 3843.
Mixing superheated steam with coal gas, Marchant, 3843.
Carburetted air for heating irons and lighting, Paris, 3905.
Treating spent oxide for re-use, &c., Valentin, 3908.
Purifiers for use in, Walker, 3988.
Scoop, for mechanical stokers, Robinson, 3997.
Carburetted air, Schüssler, 4021.
Cleaning furnace gases, Russell, 4177.
Carburetted air or gas, Johnson (*Lockwood & Lockwood*), 4200.
In distilling carbonaceous materials, Ireland, 4215.
Oil-gas and apparatus therefor, Allaire, 4326.
Carburetted water-gas, Spice, 4365.
Securing retort lids or covers, Herring, 4366.
Purifying gases, Speir & Mather, 4386.
Hydrogen, from slime, &c. of rivers, Johnson (*Moreau*), 4387.

**Gas meters.** *See* "Meters."

**Gas pipes.** *See* "Pipes."

**Gas regulators:**
Pressure, for gas works, Clark (*Casement*), 70.
Mechanical bell warner for, Hache (*Lévy*), 301.
For economising consumption in burners, Siebert, 622.
For gas-burners, Landau, 768.
Regulating supply to oil-gas burners, Thomas, 1211.
Self-acting, for supplying burners, Gercke (*Neuber*), 1531.
For gas-burners, Sugg, 1584.
For air-gas burners, Clark (*Cayco*), 1851.
For gas-burners, Dann (*Flürscheim & Baumeister*), 1983.
Valves for regulating quantity to burners, Lack, 2049.
Valve for Argand burners, Newton (*Welch*), 2197.
For gas-burners, Tackels, 2220.
For burners of gassing frames, Manchester & Turner, 2311.
For carburetted air or gas apparatus, Cooper, 2404.
Mechanical bell warner, Hache, 2493.
For gas-burners, Newton (*Tesorieri*), 2569.
Lock tap or valve for gas fittings, Jones, 2797.
Valve & indicator for street lamps, &c. & burners, Hulett, 2894.
Valves for regulating quantity to burners, Lack, 3611.
Governors, for regulating flow to jets, Wright, 3867.
For gas-burners, Johnson (*Lockwood & Lockwood*), 4200.
Regulating screw for Argand burners, Sugg, 4227.

**Gaseliers.** *See* "Lamps."

**Gaseous liquids.** *See* "Aërating."

**Gases (effecting chemical decomposition of):**
Treating the porous substances employed in, Deacon, 163.
Reducing sulphurised, &c., Haddan (*Corduria & Anthony*), [2708.

**Gases (filtering).** *See* "Filtering."

**Gaskin or engine packing.** *See* "Packing."

**Gasometers.** *See* "Gas."

**Gassing fabrics.** *See* "Finishing fabrics."

**Gassing yarns.** *See* "Finishing yarns."

**Gates.** *See* "Doors."

**Gathering and tying up corn.** *See* "Reaping."

**Gauges; water level indicators:**
For steam-boilers, Radford, 136.
Electric tell-tale for pressure, Abel (*Redslob*), 168.
Fixing glass tubes in steam taps for, Bayley & Bayley, 897.
Blow off taps provided with fusible discs, George, 949.
Steam pressure and vacuum, Burden, 986.
Friction, Napier, 1040.
Cocks for steam-boiler, Nield, 1055.
For indicating revolutions of axles, Halket, 1131.
Alarm pressure, for steam-boilers, Sauvée (*Déchamp*), 1917.
Low-water indicator for steam-boilers, Partridge, 2159.
Pressure & vacuum, Budenberg (*Schäffer & Budenberg*), 2631.
Illuminating, by electricity, Haseltine (*Cook*), 2717.
Self-closing steam-gauge cocks, Mewburn (*Weston*), 2842.
Cocks for water, Furness, 3287.
Spring tubes of pressure and vacuum, Westerby, 3455.
Water-level alarm, for steam-boilers, Lake (*Watson*), 3518.
Test, try or gauge cocks for boilers, &c., Dixon, 3804.
Valve and spindle for glass water boiler, Hallam & Lamb, 3955.
Applying reflectors to water, Crossley & others, 4111.
Arranging springs, &c. of steam pressure gauges, Burg, 4390.

**Gauging or levelling millstones.** *See* "Stone."

**Gaveling or binding grain.** *See* "Reaping."

**Gelatine:**
Substitute for, Smith (*Melville*), 1314.
From bones, hornpiths, &c., Hunter, 1811.
Extracting, Edwards (*Freeland*), 3766.
Obtaining, in making bone manure, Wise, 4176.

**Gems:**
Hardening colored glass or factitious, Macintosh, 2945.

**Generating heat.** *See* "Heating."

**Generating steam.** *See* "Steam-boilers."

**Geographical problems (solving).** *See* "Teaching."

**Getting coal.** *See* "Mining."

**Gilding, silvering and bronzing:**
Glass, Sutherland, 31.
Bronzing or powdering printed papers, &c., Crosland, 1833.
Starting and stopping bronzing machines, Crosland, 1833.
Protecting silvered glass surfaces, Hartley, 3084.
Nickel alloy as a base for, Monckton, 3509.
Bronzing or powdering printed paper, Leeming & others, 3704.
Removing excess of bronze from paper, Leeming & others, 3704.
Bronzing or powdering printed papers, &c., Crosland, 4023.
Grippers for paper bronzing machines, Crosland, 4023.
Starting and stopping bronzing machines, Crosland, 4023.

**Gill-boxes.** *See* "Spinning (carding)."

**Ginghams (weaving).** *See* "Weaving."

**Ginning cotton.** *See* "Spinning (batting)."

**Girders.** *See* "Beams."

**Glass and its applications:**
Painting, gilding and silvering, Sutherland, 31.
To furnaces, Monckton, 265.
To magnetic tension coils, Monckton, 265.
Moulding letters and figures, Greener, 268.
To table tops, Bonneville (*Leeb*), 471.
Melting pots of asbestos, Hyatt, 478
Ornamenting or reproducing photographs on, Brown, 731.
Making rolled sheet and plate, Hyatt, 783.
Potash for use in making, Hughes (*Daudenart & Verbert*), 9[illegible]
Grinding and smoothing sheet, Daglish & Daglish, 924.
To lamp reflectors, Kilpatrick, 1015.
Fuel for smelting, Jensen (*Erichsen & Maardt*), 1072.
Casting and annealing glass tubes and cylinders, Chedgey, 1[illegible]
Producing ornamental designs, &c. on, Lee, 1137.
To acid and other pumps, Suffield, 1256.
Furnace, Newton (*Houdart & Co.*), 1349.
Supplying air to furnaces, Millward (*Richardson*), 134[illegible]
To handles of umbrellas, walking-sticks, &c., Jones, 15[illegible]
Perforating globes for gas-burners, Stuart (*Stuart*), 167[illegible]
Making and applying fire-proof, Hyatt, 1715.
In constructing vats, Hartley, 1768.
Perforated, to ventilating purposes, Phillips, 1769.
Packing glass-ware, and material for, Ivimy (*Long*), 19[illegible]
Moulding and pressing glass by steam power, Haley, 192[illegible]
Tablets or discs for renovating steel pens, Bailey, 1975.
Tubes to convey and condense acid gases, Pilkington, 2111.
Bottles for holding volatile liquids, Lilburne, 2324.
Covered pots and tanks used in making, Percival, 2345.
In making stair treads and paving blocks, Cotter, 2369.
Fluted paper packing for glass-ware, Ivimy (*Long*), 2600.
Treating sand for grinding, Daglish & Daglish, 2652.
Making oil-printing blocks for decorating, Durand, 2656.
Applying sand blast to cutting corrugated, &c., Hyatt, 27[illegible]
Forming and making "tesserae," slabs & plates of, Hyatt, 27[illegible]
Making bas-relief or imprinted and mosaic sheet, Hyatt, 27[illegible]
Making crimped and corrugated sheet and plate, Hyatt, 27[illegible]
Making reflecting glasses for ships' lights, &c., Hyatt, 27[illegible]
Rolling and annealing sheet and plate, Hyatt, 2752.
Furnaces, ovens and muffles, Royer de la Bastie, 2783.
Tempering and hardening, Royer de la Bastie, 2783.
Hardening and applying, Macintosh, 2945.
Supplying hot air to furnaces, Deguine, 2983.
Cement for uniting, to iron, &c. ("Glazune"), Hartley, 30[illegible]
To architectural embellishments, Hartley, 3084.
Tank furnaces for smelting glass, Kilner, 3128.
Depositing metals on, Morgan-Brown (*Hansen*), 3146.
Sheets and plates with openings for holding, Hyatt, 3171.
To vessels for collecting rain water, Bessemer, 3319.
Printing and transferring designs, &c. to, Holyoake, 3444.
To electro-magnetic apparatus, Monckton, 3509.
Smoke consuming furnace, Jowett & Hunter, 3738.
Preserving the bridges of tank furnaces, McAdam, 3948.
Preserving the bridges of tank furnaces, McAdam, 40[illegible]
Presses for moulding glass, Sowerby, 4065.
Making extinguisher tubes in lamp bowls, Rhind, 4[illegible]
For forming chambers of gas-burners, Sugg, 4227.
Tempering glass ware ("Vulcan Glass"), Lake (*Pieper*), 43[illegible]
Plugs for vault lights, &c., Newton (*Poley & others*), 44[illegible]

**Glazes:**
Asbestos fireproof, for papers, Hyatt, 478.
For bricks and tiles, Atkinson, 1441.
For bricks and tiles, Holland, 2470.

**Glazing windows, lights, &c.** *See* "Windows."

**Glazune.** *See* "Cement."

**Globes.** *See* "Maps."

**Glockenspiels.** *See* "Bells."

**Gloves and mittens:**
Friction buckles for gloves, Dethiou, 542.
Hook and band fastener for gloves, Done, 1018.
Magnetising gloves and mitts, Lyon, 1954.
Buttons & button fasteners for gloves, Bousfield (*Heaton*), 2194.
Fastener for, Jefferys, 2269.
Fastenings for, Dowler & Smith, 2688.
Machine for fancy stitching, Byron (*Merrill*), 2750.
Buttons for, MacMillan, 4071.
Stamping and registering, Brockbank, 4250.

**Glucose.** *See* "Sugar."

**Glue:**
Treating animal size to obtain, Miller, 241.
Drying or finishing, Turney & Turney, 305.
Bleaching animal skins to produce white, Muzzarelli, 324.
Tumblers or drums used in making, Cannon, 330.
Cold, Muratori, 931.
From bones, hornpiths, &c., Hunter, 1811.
Soluble, Morgan-Brown (*Osgood*), 2875.
From gelatine obtained in making bone manure, Wise, 4176.

**Glycerine:**
Obtaining, in making soap, Newton (*Tardani*), 1614.

**Goblets.** *See* "Drinking vessels."

**Goffering, crimping, fluting, crisping and plaiting:**
Fabrics, Rath, 295.
Ribbons and other fabrics and cords, Hughes, 399.
Fabrics, felt or paper, Elder, 670.
Combined smoothing, polishing and fluting iron, Cramp, 2840.
Folding or plaiting fabrics, Johnson (*Chamberlain*), 2873.
Crimping leather, &c., Cheesbrough (*Platts & Walden*), 2928.
Woven fabrics, lace, &c., Senier & Harwood (*Desterbecq*), 3265.
Flexible moulds for, Senier & Harwood (*Desterbecq*), 3265.
Woven fabrics, Gedge (*Chiffray*), 3786.
Crimping wool, hair, &c. for hair pads, &c., Thompson, 3986.

**Gold (extracting).** *See* "Smelting metals."

**Gold size.** *See* "Size."

**Goloshes.** *See* "Boots and shoes."

**Gombo plant (treating).** *See* "Plants."

**Governors:**
For preventing racing in engines, Higginson, 42.
Steam-engine, Davies, 104.
Steam and water-engine, Lowry, 217.
Regulating speed of hydraulic engines, Joy, 366.
Indicating and regulating speed of machinery, Seyd, 377.
Gas motor engine, Abel (*Daimler*), 414.
Liquid hydro-carbon engine, Hock, 493.
Exhaust regulator for steam & caloric engines, Marchant, 509.
Steam and other engine speed indicating, Salomons, 584.
Caloric engine, Johnson (*Hirsch*), 594.
Gas-motor engine, Abel (*Daimler*), 605.
Steam and other engine, Mac George, 618.
Arranged to operate expansion valves, Messrs. Hulme, 704.
Steam and other engine, Jones, 918.
Steam-engine, Northcott, 944.
Expansion steam-engine, Van Waeyenberch, 1039.
Regulating speed and indicating motion, Crickmer, 1097.
Marine and other steam-engine, Rankin, 1136.
Steam and other engine, Appleby & Cornes, 1284.
Valve to act as a governor for steam-engines, Jackson, 1310.
Marine steam-engine, and actuating same, Weir & Weir, 1329.
Marine and other steam-engine, Lake (*Loomis*), 1381.
Steam-engine, Messrs. McNaught, 1388.
Steam-engine speed indicating, Lake (*Brown*), 1421.
Or regulators for steam-engines, Linglin, 1461.
Hot-air engine, Gottheil (*Berlin-Anhalt Machine Co.*), 1565.
For preventing racing in marine engines, Phillips, 1571.
Marine and other steam-engine, Gibson, 1600.
For marine engines, Roberts, 1604.
Or speed regulators for marine engines, Hogg, 1669.
Inverted steam-engine, Dawes & Holt, 1728.
For steam-engines, water-mills & wind-mills, Greenwood, 1834.
Or controllers for marine and other engines, Murdoch, 1844.

**Governors—*cont.***
Denoting speed of steam-engines, Barr, 1881.
Hydraulic, for engines and machinery, Willis, 1890.
Engine ("servo-motors"), Clark (*Farcot & others*), 1934.
Steam-engine, Soul (*Hartog & Co.*), 2037.
Marine and stationary steam-engine, Hayhurst, 2192.
Expansion steam and air engine, Hawkins & Lawrence, 2214.
Actuating expansion or cut-off valves, Shuttleworth, 2263.
For rotary-engine valves, Higginson, 2552.
Steam-engine, without throttle valves, Kirby & Kirby, 2607.
Steam heating and drying apparatus, Clark (*Bradford*), 2648.
For oscillating steam and water engines, Scott (*Haag*), 2758.
Marine and other steam-engine, Lake (*Muchin*), 2761.
For marine steam-engines, Johnson (*Jenkins & Lee*), 3176.
Gas-motor engine, Crossley, 3205.
And speed regulators for steam-engines, Holt, 3227.
Steam-engine, Messrs. McNaught, 3264.
Gyroscopic, for hydraulic controllers, Bessemer, 3274.
For preventing racing in marine engines, Thompson, 3284.
For steam-pumping engines, Benson (*Cope & Maxwell*), 3361.
Horizontal portable steam-engine, Craig & others, 3494.
Portable and fixed steam-engine, Richardson, 3503.
For electro-magnetic engines, Monckton, 3509.
Steam regulating valves, Metcalf & Gibbons (*Watts*), 3517.
Gyroscopic, for "Bessemer saloon" controllers, Gray, 3552.
Marine steam-engine, Newton (*Jenkins*), 3596.
For engines and machinery, Rigg, 3648.
Regulators for engines and machines, Mégy & others, 3656.
Steam regulator for compound engines, Hooker & Browne, 3661.
Steam-engine, Lake (*Muchin*), 3729.
Steam-engine, Wilson (*Herbillon*), 3763.
Steam-engine, Earnshaw & Holt, 3841.
For steam centrifugal machines, Fletcher, 3844.
Saw mill, rolling mill and marine engine, Fletcher, 3844.
Multiplying and varying gear for steam-engine, Fletcher, 3844.
Steam and other engine, Colton (*Klein*), 4224.
Steam-engine, Haseltine (*Judson & Cogswell*), 4231.
Spring motor, Jenkins, 4303.
Compound marine engine, Johnson (*Reaney*), 4318.
Making steam-engine slide valves act as, Owthwaite, 4349.
Arranging steam-engine, Wainman & Holmes, 4391.

**Grading middlings.** *See* "Grinding corn."

**Grain and seeds (grinding).** *See* "Grinding."

**Grain and seeds (hulling).** *See* "Hulling."

**Grain and seeds (treating):**
Drying damp, by heated air, Gibbs, 50.
Kiln or chamber for drying, Perry, 55.
Corn cleaning apparatus, Marshall, 85.
Ozonizing and purifying, Monckton, 265.
Drying, by heated air, Clark (*Ligny*), 323.
Softening maize for flour, Clark (*Chiozza*), 480.
And cleaning before brewing, Barlow (*Galland*), 678.
Cleaning by passing through water, Notara, 890.
Germinating grain and drying corn, Wise (*Sböril*), 1242.
Screens for screening cereals, Prentice, 1498.
Rotary screens for dressing, Rainforth & Rainforth, 1882.
Scouring collectors for smut-machines, Houghton, 2116.
Separating stony substances from, Cluderay, 2372.
Cockle-stove for drying, Perry, 2559.
Dressing and screening, Sainty, 2937.
Cylindrical brushing machines, &c., Throop (*Throop*), 3121.
Germinating grain and drying corn, Wise (*Zboril*), 3208.
Kiln or chamber for drying, Perry, 3598.
Vertical meal machine for rice dressing, Marsh, 3796.
Barley mills for dressing and cleaning rice, &c., Marsh, 3810.
Riddle for separating rice while dressing, Marsh, 3811.
Maize for brewing, Laubarede (*Baud & Saulcures*), 3982.
Cleaning or scouring wheat and other grain, Chambers, 4289.
Corn cleaning apparatus, Morgan-Brown (*Rose & Rose*), 4375.

**Grain crops (protecting from birds).** *See* "Scaring."

**Grain drills.** *See* "Sowing."

**Graining by printing.** *See* "Printing."

**Grains or spent malt:**
Kiln or chamber for drying, Perry, 55.
Treating, to obtain further extracts, Garton, 568.
Kiln or chamber for drying, Perry, 3598.

**Granite and marble.** *See* "Stone."

**Grantley Berkeley belts.** *See* "Belts."

**Granulating machines:**
Iron and slag, Wood, 201.

**Graphite.** *See* "Plumbago."

**Graphoscopes.** *See* "Optical instruments."

**Grapnels:**

For raising submerged articles, specimens, plants, &c., Clark [(*Toselli*), 1559.
For retarding railway trains, Brown, 3693.
For recovering submarine cables, Johnson, 4253.
For raising submerged objects, Clark (*Toselli*), 4275.
Combining chain of air-bags with, Clark (*Toselli*), 4275.
For raising submarine telegraph cables, Lambert, 4369.

**Gratings:**

Illuminating, Hyatt, 783.
Fireproofing glass for, Hyatt, 1715.
Making "cluster-lens" lights & "bull's eyes" for, Hyatt, 2752.
Sheets and plates for illuminated, Hyatt, 3171.
Casting metal, for pavement lights, Evans, 3367.

**Gravel (drying).** *See* "Drying."

**Graves and burial vaults:**

Constructing, draining and ventilating, Kendall, 3276.

**Grease (obtaining):**

From liquors in cleansing cotton waste, Ford, 269.
From wool liquors, Hughes (*Daudenart & Verbert*), 913.
From waste wool, hair, feathers, &c., Smith (*Melville*), 1314.
Obtaining, from waste cuttings of hides, &c., Bentley, 1478.
From cotton waste, &c., Newton (*Ralph*), 1951.
Purifying, Speir & Mather, 4386.
Extracting, from refuse and other substances, Bentley, 4452.

**Grease (paste for removing).** *See* "Soap."

**Greenhouses; conservatories:**

Tubular boiler for hot-water apparatus, Dearman, 397.
Illuminated miniature conservatory, Raggett, 1050.
Heating, by means of steam and water pipes, Simpson, 1067.
Alarm for indicating temperature, Sparkes & Marsh, 1147.
Conservatory windows, Powell, 1254.
Hot-water apparatus for heating, Weeks & Co., 1754.
Hot-air stove for, Bainbridge & Pinkney, 2112.
Wooden arched ribs for roofs of, Lascelles, 2324.
Heating conservatories, Fearns & Jackson, 2481.
System of heating, Mouly, 2566.
Boilers or water-heaters for, Wagstaff, 2700.
Portable hot-water apparatus for, Strugnell, 2820.
Stove or air heating apparatus for, Truswell & Holden, 2867.
Arranging boilers for heating, Heaps & Wheatley, 2986.
Conservatories, orchard and greenhouses, Hyatt, 3171.
Placing flue pipes in water pipes for heating, Ezard, 3458.
Erecting, fitting and ventilating iron, Elsdon & Ayres, 3497.
Raising, &c. lanterns or ventilators in, Elsdon & Ayres, 3497.
Heating, by water in sealed tubes, Scott & Timmis, 3686.
Heating winter gardens and, Lemeunier & Martin, 3791.
Glazing frames or sashes without putty, Pinder, 3990.

**Grinding, crushing & pulverising mineral substances:**

Coal, in feeding furnaces, Lancaster, 32.
Roller machine for, Cole, 181.
Coal, in feeding furnaces, Smith & others, 569.
Vertical conical burr stone mills, Heydon & Evans, 844.
Jaw and roller machines for ores, Krom, 1058.
Jaw machines for stones, &c., Smith & Smith, 1188.
Discs with cutters for ores, coprolites, &c., Anduze, 1226.
Fuel, in mechanical stoking apparatus, Butcher, 1257.
Operating hammers or stampers for ores, Scott, 1444.
Actuating quartz crushers, Manson, 1603.
Coal for dust fuel, Willans, 1612.
Percussive machinery for, Clark (*Chenot*), 1676.
Percussive engine for ores, stones, &c., Darlington, 1724.
Percussive engine for, Jordan, 1767.
Jaw-crushers, stampers and rollers for ores, &c., Marsden, 1937.
Roller machine for, Cole, 2456.
Stones, &c. for concrete making, Le Mesurier, 2594.
Working jaw machines for ores, &c., Archer, 2739.
Coal, in mechanical stokers, Henderson, 2812.
Block machine for, Goodman, 2993.
Bitumen for buildings, foot & roadways, &c., Skinner, 3217.
Casting chilled rolls for use in, Robbins & others, 3408.
Stamping gold ore, &c., Patterson, 3485.
Jaw machines, for stones, Burge & Hall, 3696.
Working hydraulic stone breakers by steam, &c., Johnson, 3769.
Coal, in mechanical stokers, Bennis, 3783.
Slide valves for stampers, Brotherhood, 3883.
Machine for stamping and crushing, Lowry, 4131.

**Grinding, polishing, smoothing and surfacing:**

Stone, marble, &c., Holmes, 68.
Constructing emery and other machines, Heaton, 189.
Metals in lieu of planing, Taylor, 198.
Stone, marble and slate, Thompson, 275.
Saws, files or other flat metal surfaces, Wilde, 343.
Constructing and adjusting emery wheels, Heaton, 689.
Sheet glass, &c., Daglish & Daglish, 924.
Cutlery, Ellis, 1021.
Making true, rolls of plate and sheet mills, Bury & Muir, 1154.

**Grinding, polishing, smoothing, &c.—*cont.***

Horn, bone and ivory buttons, Haseltine (*Isbell*), 1632.
Ivory, bone and similar buttons, Tylor, 2449.
Making emery wheels and polishing boards, Holland, 2678.
Plate or other glass, Daglish & Daglish, 2652.
Substitute for emery wheels, Macintosh, 2945.
Polishing artificial marble or stone, Roettger, 3008.
Metallic and other bodies, Gardner (*Bollmann*), 3126.
Stone and metal objects, Lake (*Volk*), 3806.
Driving machinery used for, Simpson (*Simpson*), 4145.
Scouring knives of reapers and mowers, Osborn, 4306.

**Grinding and crushing miscellaneous substances:**

Crushing baryta, cocoa, refined sugar, &c., Cole, 181.
Mortar, loam and other like mills, Campbell & Somerville, 5[illegible].
Drugs, chemicals, barytes, paints, &c., Heydon & Evans, 844.
Sugar cane mills, Buchanan, 895.
Peat for fuel, &c., Barff & Kidd, 971.
Bones, hoofs, cork, feathers, &c., Anduze, 1226.
Peat into pulp for fuel and charcoal, Redeke & Smyth, 1256.
Peat for fuel, Knowles, 1547.
Dry lithomarge, paints, chalk and earths, Willans, 1612.
Clay and other mills, Cook & others, 1671.
Peat for fuel, &c., Danchell, 2046.
Clay mills and feeding same, Wirth (*Boudriot*), 2201.
Pipe-clay for tobacco pipes, domestic use, &c., Liston, 2382.
Crushing baryta, cocoa, refined sugar, &c., Cole, 2456.
Materials for porcelain paste, &c., Alsing (*Edwards*), 2537.
Pug-mill and brick making machine combined, Fawcett, 2[illegible].
Pug-mill for supplying dry heat to material, Bolton, 2835.
Wood, &c. for paper and fabrics, Newton (*Mitscherlich*), 2[illegible].
Straw, &c. for pulp; adjusting cones, Tiffany (*Meech*), 2954.
Cement and other mill bed-stones and spindles, Howe, 3042.
Sugar cane mills, Hunt (*Lahaye & others*), 3071.
Pulverising or dividing guano, &c., Crowl, 3211.
Crushing sugar cane, Patterson, 3485.
Stamping and crushing animal substances, Patterson, 3485.
Pug mill for brick making, Thairlwall, 3624.
Pug mill for brick making, Bawden, 3627.
Jaw machines, for cement, clinkers, &c., Burge & Hall, 3[illegible].
Fibres for paper, Johnson (*Thode Paper Making Co.*), 3[illegible].
Breaking hard substances, Alexander (*Ménier*), 3814.
Fibres for paper pulp, Clark (*Chamas & others*), 3877.
Arranging sugar cane mills, Risien (*Russell*), 4094.
Machine for stamping and crushing, Lowry, 4131.

**Grinding and sharpening:**

Cork and other circular knives, Gilbee (*Boëthius*), 354.
Travelling flats of carding-engines, Clegg & Lucas, 623.
Chisels and other tools, Heaton, 689.
Knives, Clark (*Taft*), 780.
Knives, cutters, tools, &c., Riches, 1301.
Whetting graving tools, Vaughan (*Messier*), 1443.
Needles, pins, card and heckle teeth, &c., Richardson, 1681.
Mine tools by percussion, Darlington, 1724.
Knives, Clark (*Taft*), 2271.
And setting needles, James, 2429.
Knives, for fleshing hides or skins, Johnson (*Breval*), 3[illegible].
And gulletting saw teeth, Harrison, 3218.
Convertible machine for sharpening knives, Townsend, 3454.

**Grinding corn, grain and seeds; dressing flour:**

Actuating sieves in dressing flour, Pindar & Pindar, 125.
Maize for flour, Clark (*Chiozza*), 480.
Silk flour dressing machinery, Palmer & Hopkinson, 572.
Hand grinding mill, Hunt (*Enterprise Manfg. Co.*), 6[illegible].
Purifying middlings, Whitmore, 626.
Malt in brewing, Barlow (*Galland*), 678.
Treating or preparing meal, Palmer (*Wegmann*), 823.
Vertical conical burr stone mills, Heydon & Evans, 844.
Dressing millstones, Sears (*Chisholm, Bros.*), 846.
Adjusting top stone of corn mills, Ibbotson, 869.
Coffee, pepper, &c., Clark (*Anduze*), 990.
Dressing millstones, Haseltine (*Larer & Griscom*), 1129.
Grain and seeds, Anduze, 1226.
Bolting flour and purifying middlings, Childs, 1455.
Separating flour or meal from bran, &c., McNally, 1518.
Farinaceous substances, Willans, 1612.
Preventing fire from friction in, Murray & Paterson, 1721.
Dressing machines or sifting meal and pollard, Staniar, 1[illegible].
Purifying and grading middlings, Lake (*Howes & others*), 1[illegible].
Dressing millstones, Haseltine (*Dean & others*), 2061.
Breaking and preparing wheat for, Copping & Walworth, 2[illegible].
Safety feeding guards and elevators for mills, Fison, 2[illegible].
Millstones, flour sifters and aspirator, Aubin, 2184.
Staff for gauging millstone surfaces, Partridge, 2365.
Grain, seeds, &c.; cooling grinders, Greig & Spinks, 2549.
Self-acting lever machine or motive-power for, White, 2[illegible].
Flour dressing machine, Lake (*Martin*), 32[illegible].
Ventilating millstones, Higginbottom & Hutchinson, 33[illegible].
Self-acting mill for coffee, &c., Gedge (*Redon & Co.*), 3406.
Mustard and other seeds and berries, Patterson, 3485.
Propelling or driving machines for, Monckton, 3509.
Adapting chaff-cutters for crushing oats, Edwards, 3617.
Indicating when supply is exhausted in, Render, 3637.

**Grinding corn, &c. and dressing flour—*cont.***
Preventing injury to stones and fire in, Render, 3837.
Clearing reels in dressing flour, Armstrong & Neill, 3861.
Treating or purifying sharps or middlings, Young, 3940.
Mills or apparatus for, and ventilating, Greig & Spinks, 4147.

**Grippers or tongs for lifting casks.** *See* "Casks."

**Guano.** *See* "Manure."

**Guards for windows.** *See* "Windows."

**Guides for axle-boxes.** *See* "Axles."

**Guiding ships.** *See* "Steering."

**Gum, resins and gum-resins:**
From linseed and similar oils, Lake (*Cattanach*), 423.
Apparatus for holding, Shedlock, 558.
Substitute for, Smith (*Melville*), 1314.
Gum-resin or "Zapotine," Conybeare & Naphegyi, 2106.
Solvents for resins and gum-resins, Mackay, 2709.
Obtaining gum from wood, Newton (*Mitscherlich*), 2939.
Converting starch and fecula into "British," Manbré, 3639.
Obtaining "gombine," Clark (*Chamas & others*), 3877.
Vessel for delivering gum, Jacobsohn, 3975.

**Gumming labels.** *See* "Labels."

**Gun cotton.** *See* "Explosive compounds."

**Gunpowder.** *See* "Explosive compounds."

**Guns.** *See* "Fire-arms."

**Gutta-percha (treating and applying):**
Washing and cleansing, Truman, 124.
Composition for covering, Muratori, 931.
To wrappers or envelopes of seed presses, Searle, 1630.
In making horse-shoes, Steers & Druce, 1653.
In making horse-shoes, boot soles, &c., Baker, 1794.
Substitute for, ("Zapotine"), Conybeare & Naphegyi, 2106.
Substitute for, ("Plastique"), Lake (*Bell*), 2250.
To fire detectors or alarms and indicators, Lewthwaite, 2313.
To cartridge shells or cases, Pieri, 2727.
To inner soles or socks for boots, Achenbach (*Simis*), 3849.
In coating ships' bottoms, &c., Younghusband & others, 4079.
To oil-lamps, Weir, 4339.
Substitute for ("Plastique"), Lake (*Bell*), 4343.
Fixing soles and heels to boots by a solution of, Dick, 4482.

**Gymnastic performances.** *See* "Games."

**Gyroscopes; gyroscopic apparatus:**
For controlling motion of ships, saloons, &c., Bessemer, 3274.
For "Bessemer saloon," &c. controlling apparatus, Gray, 3552.

## H.

**Hackling fibres.** *See* "Spinning (carding)."

**Hair (craping).** *See* "Crape."

**Hair-dressing; shaving:**
Hair-dye, Bramwell, 79.
Converting brooches into ornaments for, Barrett, 955.
Shower or spray bath for shampooing, Smeaton & Tylor, 1028.
Hair pin acting as a clip, Eastman, 1245.
Chignons and wigs, Clarke & Donisthorpe, 1704.
Adapting book leaves for curl papers, Barker, 1717.
Strands for plaits, chignons, &c., Donisthorpe & Clarke, 1778.
Perfuming oil for pomades, Harris (*Walton & others*), 2053.
Making cast steel razors, Johnson, 2094.
Adjusting chair for use in, Golden, 2326.
Corrugating teeth of head combs, Dittenhoefer, 2785.
Hair-brushing machine, Nevos, 2886.
Using kaolin in making pomades, Brandon (*Lavandier*), 3161.
Hair heading for curls & braids for, O'Brien & Contrell, 3245.
Razors, of "nickelised" iron, Monckton, 3509.
Hair brushes, Chadwick & Condron, 3776.
Apparatus or appliances for shaving, &c., Monks, 3834.
An "interstitial guard plate" for razors, Monks, 3834.
Vessel for delivering hair oil, Jacobsohn, 3975.
Hair pads, frisettes and chignons, Thompson, 3986.
Rotating hair-brushing and cleaning machine, Small, 4159.
Fastening and protecting hair ornaments, Bale, 4292.

**Hammering metals.** *See* "Forging."

**Hammers:**
Actuating steam, Hooker, 203.
Combined wrench and, Griffin (*Austin*), 219.
Constructing revolving, Stacy, 252.
Of combined cast iron and steel, Lauth (*Sleath*), 549.
Multiple tool, Baille, 603.
Giving motion to hammers in forging metals, &c., Scott, 1444.
Operating atmospheric, Manson, 1603.
Triple acting atmospheric, Clark (*Chenot*), 1676.
Percussive, Darlington, 1724.
Arranging ports and valves of steam, Lake (*Pregél*), 1731.
Of "oliver" bolt-making machines, Archer, 1757.
Percussive, Jordan, 1767.
Constructing forge hammer frames, Sutherland, 1784.
Making cast steel, Johnson, 2094.
Magnetic, in tack driving machine, Tongue (*Thompson*), 2489.
Slide valves of steam, Higham, 2657.
Steam or compressed air Haseltine (*Thurston*), 2741.
Applying elastic medium to cylinders of, Browett, 2887.
Reciprocating steam, Barlow (*Turrettini & Colladon*), 3038.
Reciprocating engine for actuating, Edwards, 3342.
Slide valves for steam, Brotherhood, 3883.
Power, Lowry, 4131.
Automatically working hammers of stampers, Vaughan, 4439.

**Hammocks.** *See* "Furniture."

**Hand stamps.** *See* "Stamps."

**Handkerchiefs (weaving)** *See* "Weaving."

**Handles or door knobs.** *See* "Doors."

**Handles (use not defined):**
Attaching, to various articles, Garrad, 1739.
Nickelising metallic, to prevent corrosion, Underwood, 2953.
Nickelising metallic, to prevent corrosion, Underwood, 3136.
Of "nickelised" iron, Monckton, 3509.
For metal ware, Clark (*Tiffany & Co.*), 4034.

**Hanging paper.** *See* "Paper-hangings."

**Hangings and drapery.** *See* "Upholstery."

**Harbours; quays; moles; wharves:**
Submerging apparatus for, Mills (*Rocco & Pautrier*), 1405.
Constructing foundation for quay walls, Hunter, 2097.
Compound material for and constructing, Brannon, 2128.
Columns for erecting wharves, Johnson (*Hill*), 2398.
Pontoons for lifting, &c. material in building, Darley, 2782.
Caissons and bridges for bridging entrance to, Kinipple, 3573.

**Harmoniums.** *See* "Musical instruments."

**Harness and saddlery:**
Relieving tractive strain, &c., Fowlie, 2.
Snaps or connectors for, Cockings (*Reynolds*), 154.
Saddle airers, Goulding, 405.
Saddles or pads, More & Norman, 489.
Pellionies or saddle cloths, Robertshaw, 1044.
Using wire in sewing, Clark (*Bourdais*), 1048.
Releasing fallen horses, Winter, 1081.
Stopping or restraining horses, Clark (*Jouret*), 1110.
Leather shield or "brushing-boot" for horses, Harries, 1174.
Lining collars, saddles, &c., Tongue (*Curtis & Gilman*), 1299.
Horse-cloths, Rowan & Reid, 1507.
Crystal handles for riding whips, Jones, 1532.
Cutting and shaping whip thongs, Gedge (*Rigaux*), 1678.
Dog collars, Lake (*Mersereau*), 1788.
Metallic traces and kicking straps, Singer, 2012.
Stirrup bar, Billings, 2043.
Wire muzzles for dogs, &c., Mohr & Shammon, 2218.
Machine for fancy stitching, Byron (*Merrill*), 2750.
Attaching traces to and detaching from vehicles, Carter, 2923.
Folding leather for, Cheesbrough (*Platts & Walden*), 2928.
Rounding leather for reins and traces, Lake (*Osborne*), 3045.
Slip buckle or link for, Clayton (*Owen*), 3050.
Catch and slip hook for traces and, Rogers, 3301.
Adjustable saddles, Clay, 3329.
Spurs and furniture of "nickelised" iron, Monckton, 3509.
Adjustable military and other saddles, Garnett, 3512.
Adjustable saddle trees or frames, Burch & Thom, 3526.
Instantly releasing horses from vehicles, Staker, 3929.
Sockets for securing whips in vehicles, Knibbs, 4003.
Waterproofing horse-cloths, Wilkinson, 4026.
Material for making harness, Wilkinson, 4026.
Connecting straps ("Lennans safety tugs"), Sampson, 4099.
Brushing and cleaning horses and other animals, Small, 4159.
Enclosing parasols in tubes or riding whips, Pyne, 4249.
Ornamental knobs for riding whips, Clark (*Ulmann*), 4356.
Making and suspending nose-bags, Brown, 4370.
Metallic harness saddle trees, Cox, 4438.
Saddles and saddle girths, Wilton, 4444.
A "safety tether for runaway horses," Johnson (*Larmarque & Bories*), 4492.

**Harness for looms.** *See* "Weaving (harness)."

**Harpoons.** *See* "Fishing."

**Harrows.** *See* "Tilling."

**Harvesting machines.** *See* "Reaping."

**Hat carriers and suspenders:**

Hook or clip for, Walker, 134.
Endless bands for railway carriage, Townsend, 2217.

**Hats; caps; coverings for the head:**

Cap or head-dress for travelling, Atkinson, 105.
Ayrshire or Scotch bonnets, Russell, 159.
Hat bands, Condit (*Chapin*), 316.
Scotch bonnets, Cunningham & Douglas, 336.
Cap fronts, Hughes, 399.
Adapting a mirror to the interiors of, Gold, 524.
Planking felt, Mills (*Klein & Co.*), 665.
Attaching weather guards to, Clark (*Grut*), 875.
Scotch bonnets, &c., Cunningham & Douglas, 896.
Hook for suspending, Clark (*Cole*), 953.
Irons for blocking and smoothing, Sanson, 1418.
Waterproofing leather for linings, Frankenburg, 1650.
Scotch caps or bonnets, Hands & Scampton, 1830.
Sewing straw-braid for, Hughes (*Baldwin*), 1867.
Box smoothing irons, Warner & others, 2076.
Blocking or moulding straw, felt and other, Drewett, 2216.
Stretching the tips and brims of, Eaton, 2731.
Compressed air cavity caps, Reade & Hurd, 2747.
Ironing or finishing machine, Clark (*Brand*), 3072.
Smoothing irons and heating same, Stichbury, 3454.
Fibres for felt, Morgan-Brown (*Mennig & Mennig*), 3534.
Scotch bonnets, Tilley, 3809.
Shaping or adapting back of, to head of wearer, Paul, 3828.
Frames for shaping or curling brims of felt, Burch, 3967.
Applying cork in making or lining caps, Ritchie, 3977.
Wiring hat and bonnet shapes, &c., Bowyer & Strupp, 4019.
Sewing-machine for straw hats, bonnets, &c., Bland, 4241.
Wooden bodies for shakos and, Johnson (*Joannon*), 4282.
Forming felt hat bodies, Wharton & Yule, 4474.
Vise and iron for finishing, &c. hat brims, Spence (*Corey*), 4481.
Finishing, curling and shaping hats, Spence (*Corey*), 4481.

**Hauling or hoisting machinery.** *See* "Hoists."

**Hay and other stacks:**

Rotting or overheating indicator for, Hughes, 3538.

**Hay crops (drying).** *See* "Drying."

**Hay forks for stacking.** *See* "Stacking."

**Hay-making machines:**

Hot-air apparatus for drying and making hay, Gibbs, 50.
Constructing and operating rotary, Lake (*Perry*), 585.
Horse rakes, Haughton & others, 1303.
Working or operating rakes or tines, Dening, 1440.
Driving and operating tine axles, Andrews, 3331.
Trussing hay and straw, Mewburn (*Saladin*), 3344.
Collecting and turning hay, Wagstaff, 4092.

**Head-dresses.** *See* "Hair-dressing."

**Heading nails.** *See* "Nails."

**Healds for looms.** *See* "Weaving (harness)."

**Hearth rugs.** *See* "Rugs."

**Heating; obtaining heat:**

Utilising waste heat from boiler furnaces, Lancaster, 32.
Utilising heat in coke ovens, Aitken, 57.
Increasing combustion by balls or blocks, Clark (*Casement*), 69.
Utilising waste heat in furnaces, Crosland, 151.
Air for drying yarns, Bullough, 177.
Utilising waste heat from stoves, Lewis & Wood, 180.
In making alloys, chemical compounds, &c., Monckton, 265.
Air for drying wood, grain, &c., Clark (*Ligny*), 323.
Air by waste furnace gases, Brook & Wilson, 427.
In sulphate apparatus, Hargreaves & Robinson, 448.
Mastic, to prevent radiation, Craps & Derihon (*Reintjens*), 529.
Earthenware printers' stoves or hot plates, Harlow, 541.
Returning waste to cupolas & furnaces, Haigh & Bleasby, 556.
Materials, &c. in blast furnaces, Aitken, 576.
Hot-air regenerators, Johnson (*Hirsch*), 594.
Increasing heating surface in steam-boilers, Kitchin, 604.
Utilising heat in steam-boilers, Rydill, 637.
In brewing (recuperators), Barlow (*Galland*), 678.
Utilising waste of furnaces, Kirtley, 765.
Or warming liquids over gas jets, Myers, 851.
Air, Chatterton, 852.
Utilising waste from furnaces, Clark (*Farley*), 876.
Utilising waste from ranges for heating water, Smith, 883.
Adapting oil lamps for, Rippingille, 920.
Arranging tubes for heating water, Milburn & Jackson, 1006.
Utilising waste from Bessemer converters, Parsons, 1053.

**Heating; obtaining heat—*cont.***

Utilising waste in steam-boilers, Howatson, 1068.
Boiler and receiver for liquids, Gedge (*Fabas*), 1193.
Economising heat from steam-boiler furnaces, Booth, 1295.
Utilising waste in boilers, Millward (*Richardson*), 1387.
Utilising waste in buildings, &c., Brookes (*Chaumont*), 1431.
Electricity as applied to, Johnson (*De Mersanne*), 1446.
Utilising waste in brick and other kilns, Bull, 1538.
Air for consuming smoke, Macfarlane & Macfarlane, 1[illegible].
Utilising waste in reducing iron ores, Hunter, 1538.
Utilising waste from steam-boiler furnaces, Russell, 1962.
Utilising waste in marine steam-boilers, Wilson, 2042.
Utilising waste, Bainbridge & Pinkney, 2112.
Preventing loss from boiler furnaces, Plunkett, 2253.
Air for cupolas, blast furnaces, &c., Lake (*Esser*), 2259.
Utilising waste heat from blast furnaces, Lloyd, 2263.
Arranging pipes for, Wilson & Steel, 2397.
Regulating heat in rendering fats, &c., Lake (*Firmas*), 2412.
Utilising waste from furnaces, Abel (*Foster*), 2468.
Utilising waste in boilers, Abel (*Roberts*), 2516.
Air for carburetting, in making gas, Clark, 2571.
Portable or pocket stove for warming food, &c., Lefèvre, 2[illegible].
Air, for paper drying cylinders, rag boilers, &c., Taylor, 2[illegible].
Governors for steam heaters, Clark (*Bradford*), 2644.
By alternately evaporating and condensing steam, Roe, 2702.
Using coke oven waste for drying sewage, Bennett, 2710.
Utilising waste from peat refuse, Henry (*Lair*), 2802.
Utilising waste in making sulphuric acid, De Hemptinne, 2[illegible].
Utilising and economising heat in steam-boilers, Russ, 2[illegible].
Multitubular air-heaters by waste gases, Lyttle, 2930.
Arranging boilers for, Heaps & Wheatley, 2986.
Economising heat of pyrites burners, Hunt, 3005.
Heaters for generating gases for motive-power, &c., Waller, 3017.
Heaters for superheating vapours, gases, &c., Waller, 3017.
Gaseous or liquid fuel lamp for, Clark (*Granier*), 3056.
Regulating heat in wire annealing ovens, Littlewood, 3122.
Gas apparatus for heating articles, McKay, 3460.
Utilising heat in hydro-thermic motors, Tommasi, 3476.
Drying floors by exhaust steam, Batley & Watkinson, 3537.
By heat from water in sealed tubes, Scott & Timmis, 3[illegible].
Air or water heating apparatus, Edwards (*Freeland*), 3766.
Coating composition for, to save heat, Stone, 3801.
Utilising heat of locomotive exhaust, Cook, 3890.
Combined alarum and heating apparatus, Sharp, 4031.
Air by condensing steam, Lacordaire (*Fourlinnie*), 4168.
Generating and storing heat, Russell, 4177.
Obtaining heat from flints and steel, &c., Cave, 4251.
Stove or apparatus for heating water, &c., Eyre, 4256.
Regulating the use of waste steam for, Wise (*Coignet*), 4[illegible].
Liquids, Speir & Mather, 4386.
Distilling columns, Comte de Beaurepaire de Louvagny, 4[illegible]

**Heating feed-water.** *See* "Steam-boilers."

**Heating or evaporating:**

Perfuming and other fluids, Abrahams, 227.
Volatile liquids to reduce temperature, Harrison, 383.
Brine pans for making salt, Dearman, 397.
Salt pans, Jensen (*Erichsen & Maardt*), 1072.
Pans for, Willoughby & others, 1126.
Refrigerating solutions, Harrison, 1244.
In making salt and sugar, Lake (*Renshaw*), 1300.
Soda lye or liquids, Stevenson, 1469.
Liquids, Fryer, 1774.
Fire grates for heating and evaporating pans, Redish, 2[illegible].
Furnaces for pans for, Bainbridge & Pinkney, 2112.
Constructing cockle-stoves with pans for, Perry, 2559.
Vessels for sugar-making, Hunt (*Lionarous & Prass*), 2[illegible].
By alternately evaporating and condensing steam, Roe, 2702.
Distilling peat, &c. refuse for ammonia, Henry (*Lair*), 2[illegible].
Portable apparatus for, Strugnell, 2820.
Cane juice and other liquids, Espeut, 2825.
Fixing tubes in pans for, Watson & Robertson, 2[illegible].
Brine pans for salt-making, Barrow, 3139.
Saccharine and other solutions, Espeut, 3295.
Heaters for evolving vapors, &c., Berryman, 3306.
Steam jet exhausting apparatus for, Körting, 3505.
Vaporising substances, for extracting oil, &c., Scaife, 3602.
Evaporating or boiling pan, Edwards (*Freeland*), 3766.
Chamber or stove for, Perry, 3827.
Concentrating waste alkaline liquors, Fyfe & Bowers, 4112.
Paper makers' lyes, to recover chemicals, Roeckner, 4117.
Feeding steam for, in vacuo, Wise (*Coignet*), 4325.
And concentrating liquids, Müller, 4458.

**Heating or warming carriages:**

Fire-places for railway, Johnson (*Mousseron*), 73.
Self-acting arrangement of pipes for railway, Dawber, 9[illegible].
Railway, common road & tramway, Brookes (*Chaumont*), 1[illegible].
Hot-water foot-warmers, Heaps & Wheatley, 2986.
By heat from water in sealed tubes, Scott & Timmis, 3[illegible].
Railway carriages by hot-air, Tice, 3690.
Combined hot-air & water heater, Lemeunier & Martin, 3[illegible].
By waste steam from locomotives, Weston, 3914.

**Heating or warming rooms and buildings:**
By hot-air, Lewis & Wood, 180.
Supplying heated air for, Lake (*Myers*), 233.
Stoves and air or water tubes for, Snell, 379.
By hot-air, Brook & Wilson, 427.
Boilers and heater for, Newton (*Babbitt*), 459.
Fire-boxes and pipe flues for, Buckingham, 551.
By hot-air, Meldrum, 559.
Stove for, Freund, 607.
System of, Taylor, 751.
Saddle-boilers for, Hartley & Sugden, 871.
Stove for heating fresh air for, Peacock, 1065.
Greenhouses, by steam and water pipes, Simpson, 1067.
Arranging air tubes in fire-grates, &c. for, Matthews, 1210.
By hot-water, Taylor & others, 1331.
Boiler for generating steam for, Macdonald, 1375.
By hot-air, Lake (*Cushing*), 1403.
Arranging warming chest, &c. for, Brookes (*Chaumont*), 1431.
Stove for heating air for, Looker, 1585.
Furnaces for house heaters, Jensen (*Ayer*), 1680.
Hot "water battery" for heating air for, Ballard & Pitts, 1863.
By steam laid on from main pipes, Lake (*Coleman*), 2065.
Liquid fuel apparatus for, Johnson (*Thorp*), 2100.
Hot-air stove for, Whiting, 2104.
Hot-air stove for, Bainbridge & Pinkney, 2112.
By steam or hot-water, Fearns & Jackson, 2461.
Gas-burner apparatus for, Straten, 2526.
Cockle-stove for, Perry, 2559.
By calorific and hydro-therapic system, Mouly, 2566.
Arranging fire-grates with hot-air flues for, Ball, 2583.
Hot-air apparatus for, Taylor, 2626.
Hot-water apparatus for, Harlow, 2683.
Boilers or water-heaters for, Wagstaff, 2700.
By hot-air, Caton, 2792.
Portable hot-water apparatus for, Strugnell, 2820.
Stove for, Freund, 2849.
Stove or air heating apparatus for, Truswell & Holden, 2867.
Arranging boilers for, Heaps & Wheatley, 2986.
Placing flue pipes in hot-water pipes for, Ezard, 3458.
Jet apparatus for, Körting, 3505.
By heat from water in sealed tubes, Scott & Timmis, 3686.
Combined hot-air & water heater, Lemeunier & Martin, 3791.
Stove for, through the medium of water, Jacobsohn, 3952.
By air warmed in fire grate backs, Shorland, 3999.
Gas stove for heating air for, Harrold, 4027.
Stoves for, Ritchie, 4043.
By steam laid on from main pipes, Lake (*Coleman*), 4230.
Stove or air-heating apparatus for, Eyre, 4256.
Combined cooking and hot-air stove for, Whitehead, 4315.
Bell stove for, Coventry, 4379.

**Heating or warming ships or vessels:**
By heat from water in sealed tubes, Scott & Timmis, 3686.
Heating air in and for, and conveying same, Tice, 3690.

**Heckling fibres.** *See* "Spinning (carding)."

**Heddles or healds.** *See* "Weaving (harness)."

**Hedges (cutting).** *See* "Plants and trees."

**Hemp.** *See* "Fibres" and "Spinning."

**Hides and skins.** *See* "Leather."

**Hinges:**
Interiors provided with invisible springs, Zalkind, 742.
For railway car journals, Hughes (*Smith*), 750.
For charcoal box irons, Perks & Perks, 856.
Constructing and arranging door, Turner, 2021.
Spring, for inkstands, casks, taps, valves, &c., Wood, 2123.
For sewing-machine and other tables, Jones, 2889.
Butts and other, Little, 3468.
Of "nickelised" iron, Monckton, 3509.

**Hives for bees.** *See* "Bee-hives."

**Hives for breeding, &c. oysters.** *See* "Oysters."

**Hoes (garden).** *See* "Garden implements."

**Hoes (horse).** *See* "Tilling land."

**Hoists; raising, hauling and lowering heavy bodies:**
Hydraulic capstans, Westmacott, 60.
Windlass for furnace grates, Clark (*Casement*), 69.
Hydraulic, Shaw & Shaw, 155.
Safety apparatus for cages, Hughes (*Libotte*), 157.
Treble purchase capstans, Smith & others, 193.
Winches and sack elevators, Lewis & Lewis, 252.
Combined capstan and windlass, Harfield, 310.
Operating cranes, Mann (*Watson*), 356.
Automatic breaks for, Johnson (*Hart*), 358.
Arresting, in raising and lowering weights, Smith, 452.
Steam and other winches, Napier & Napier, 580.
Travelling and stationary cranes, Napier & Napier, 580.

**Hoists, &c.—*cont.***
Differential friction windlasses, Napier & Napier, 580.
Differential friction clutches for, Napier & Napier, 580.
Moveable ships' capstans, Clarke & Walker, 843.
Endless screw or worm tackle, Mewburn (*Verlinde*), 850.
Hoistway doors of buildings, Haseltine (*Meaker*), 937.
Property from burning buildings, Lake (*Bustin*), 962.
Hydraulic press for lifting, Tangye, 967.
Lifting and hauling casks, crates, &c., Stevens (*Reid*), 1014.
Travelling jib cranes, Clayton & Shuttleworth, 1166.
Windlasses and winding engines, Greenslade, 1241.
Cranes, with self-acting balance, Appleby, 1285.
Portable machine for hoisting sacks, &c., Mitchell, 1302.
Winding (barrel) gear for hoists, cranes, &c., Obach, 1343.
Tidal power machine for working, Templar, 1434.
Breaks for pulley blocks, Crowley, 1483.
Combined air and water engine for raising, Spartali, 1500.
Grapnels for raising articles, Clark (*Toselli*), 1559.
Using wheels of fire escapes as a windlass, Clayton, 1580.
Steam-cranes, hoists, elevators, &c., Herring, 1641.
Or cranes for excavating purposes, Hunter, 1741.
Fire-escape applicable for lowering goods, Martin, 1836.
Winch for raising, &c. carriage & other windows, Adams, 1852.
Utilising surplus pressure in actuating, Oram, 1868.
Servo-motor windlasses, Clark (*Farcot & others*), 1934.
Wire belt elevators, Greening & Greening, 2019.
Lewises for lifting building blocks, Matthews, 2154.
Hauling apparatus for coal cutters, Eaglesham & Rigg, 2171.
Sack elevating platform, Tooley, 2212.
Breaks for lifting and hauling apparatus, Bourgougnon, 2292.
Valve gear for steam winches, Bremme, 2361.
Horse capstans, Bergner, 2377.
Safety apparatus for cages, Hughes (*Libotte*), 2435.
Hydraulic ship lifts, Scott, 2502.
Breaks for cranes, travellers, &c., Labett, 2521.
Steam-winches, Bornays, 2674.
Pontoons for lifting weights under water, Darley, 2782.
Working winding engines and steam cranes, Sudlow, 2962.
Pawl for lifting or winding apparatus, Kneebone & Gay, 2965.
Windlasses with reversing gear, Harfield, 3026.
Slip buckle or link for, Clayton (*Owen*), 3050.
Windlasses and capstans, Bullivant, 3054.
Raising or elevating coal, &c., Haseltine (*Bates*), 3186.
Arranging telescopic tubes or rams for lifts, Holden, 3193.
Windlass for coal tipping chutes, Lake (*Upsom*), 3198.
Rope apparatus for lowering bodies or weights, Hill, 3216.
Friction breaks for cranes, Bellamy, 3223.
Jack for railway purposes, Bonneville (*Chaudoir*), 3273.
Cam arrangement for lifting, McNabb, 3296.
Catch and slip hook for cranes, Rogers, 3301.
Reciprocating engines for driving, Edwards, 3342.
Arranging weighing machine with sack, Wilkerson, 3347.
Telescopic rams for hydraulic lifts, Hitchen, 3427.
Cords or ropes for hauling or lifting purposes, Mewis, 3481.
Semi-portable engine for winding, &c., Greig & Daniel, 3535.
Safety apparatus for steam cranes, &c., Taylor, 3588.
Hydraulic apparatus, &c. for, Grenfell & Newman, 3607.
Double-acting jib crane, Bray, 3619.
Lifting, tilting and emptying sacks, Tooley, 3631.
Regulators for windlasses and, Mégy & others, 3656.
Sack lifter, Perkins, 3710.
Winch breaks and hoist regulators, Clark (*Lartigue*), 3771.
Retention apparatus and "clasp guide" for, Roberts, 3775.
Self-disconnecting hook for, Enright, 3785.
Windlass and driving gear for hoisting or hauling, Yull, 3899.
Hauling or winding gear, Stevenson & Reid, 3939.
Compound bush for pulley blocks, McAdam, 3966.
Combined crane and locomotive steam-engine, Reid, 4001.
Wedge safety device for lifts and other, Davis, 4042.
Hoist and fire-escape for mills, &c., Kitson & Naylor, 4178.
Operating elevators in buildings, Lake (*Coleman*), 4230.
Hydraulic duplex apparatus for raising, &c., Hedley, 4252.
Friction pulley blocks, Wethered, 4446.
Hydraulic lifting apparatus, Anderson, 4489.
Working capstans or cranes, Anderson, 4489.
Dispensing with accumulators in lifting, Anderson, 4489.

**Holders for carrying books.** *See* "Books."

**Holders for tools.** *See* "Tools."

**Holeing and cutting coal.** *See* "Mining."

**Hoofs.** *See* "Bone."

**Hooks and clips:**
For suspending hangings, garments, &c., Walker, 134.
Casting snap hooks, Cockings (*Reynolds*), 154.
Substitute for hooks and eyes, Clark (*Grut*), 875.
For suspending coats, hats, &c., Clark (*Cole*), 953.
For railway carriage couplings, Cook, 2096.
For coupling rods of railway vehicles, Handyside, 2323.
For railway and tramway couplings, Wagner, 2422.
For caissons or pontoons for raising ships, Scott, 2502.
For threading needles, Fobes (*Wells*), 2561.
Making fish hooks, Newton (*Court & others*), 2729.

**Hooks and clips—*cont.***

Tenter, for drying textile fabrics, Stott & Barker, 2763.
Grappling, for railway cars, &c., Cheesbrough (*Pooley*), 2800.
Catch and slip, for boats, vehicles, cranes, &c., Rogers, 3301.
For automatic couplers, Redgrave & Redgrave (*Mills*), 3593.
Catch hooks for railway couplings, Stableford, 3643.
Self-disconnecting circular hook, Enright, 3785.
For attaching bed furniture and trimmings, Dearden, 4449.

**Hoops, rings and bands:**

Rolling hoop iron for casks and bales, Bradshaw, 872.
Forging or making weldless, Ashbury, 898.
For securing bales, Bradshaw, 1182.
Forming loops on bale hoops or bands, Marsden, 1615.
For securing bales, Stiff & Sheldon, 2221.
For securing bales, Bradshaw, 2329.
Rolling bars for forming, Robinson, 2718.
Dies for welding rings, Gray & Taylor (*Selden*), 2772.
Hydraulic presses for forging, Whitworth, 3064.
Compound tool for making rings, Harrison, 3083.
Uniting bands for baling cotton, &c., Benson (*Compton*), 3369.
Rings and endless round bands of rubber, &c., Ingram, 3437.
Rings of "nickelised" iron, Monckton, 3509.

**Hop plants.** *See* "Plants."

**Hops:**

Kiln or chamber for drying, Perry, 55.
Kiln or "oast" house for drying, Noakes, 332.
Squeezing liquid matter from spent, Hall, 468.
Straining liquid or moisture from, Clark, 1453.
Preserving, and oil from same, Johnson (*Breithaupt*), 2083.
Cockle-stove for drying, Perry, 2559.
Kiln or chamber for drying, Perry, 3598.

**Horn.** *See* "Bone."

**Horological instruments.** *See* "Clocks."

**Horse hay-rakes.** *See* "Hay-making."

**Horse-clippers.** *See* "Shears."

**Horse-cloths and collars.** *See* "Harness."

**Horse-power engines:**

Constructing and lubricating, Avery, 144.
For driving machinery direct, Wilson & Battersby, 3109.

**Horse-shoes:**

With grooves, projections and artificial frog, Lancaster, 46.
With prongs and blocks of felt inserted, Turnbull, 170.
With inserted steel pegs ("Antislippery"), Le Bacq, 221.
With grooves or recesses, Aris, 625.
Channelled or honey-combed, Hunt (*Sibut*), 867.
With grooves and projections, Thuillard, 987.
Making and securing bosses or nuts in, Fryer & Hodgson, 1258.
With hollow toe to receive packing, Ivory, 1293.
Of leather, gutta-percha and compounds, Steers & Druce, 1653.
Of gutta-percha & metal borings, &c., combined, Baker, 1794.
Shaping, sprunning & punching, Horsfall & Greenwood, 2266.
Making or casting horse-nails, Mackley, 2281.
Forming, with caulks, Haseltine (*Dunning & George*), 2475.
Forming animal shoes of untanned buffalo hide, Yates, 2509.
Forming, with grooves to hold gravel, &c., Marsden, 2695.
Rolling bars of irregular form for, Miller & Raine, 2916.
Chilling the treading part of, Macintosh, 2945.
Roughing pieces for, Swainson & Dover, 3184.
Of iron and india-rubber combined, Cooke, 3321.
Securing, &c. frost and other shoes, Brazenor, 3680.
Nails, budds and sprigs for, Purdie, 4067.
Forming nails from soft cast steel, Huggett, 4161.
Forming for attachment without nails, Wing, 4457.

**Horticulture (teaching).** *See* "Teaching."

**Hose or pipes.** *See* "Pipes."

**Hosiery (knitting).** *See* "Knitting."

**Hospital berths.** *See* "Buildings."

**Hot-air drying apparatus.** *See* "Drying."

**Hot-air engines.** *See* "Air-engines."

**Hot-water boilers.** *See* "Boilers."

**Hot-water plates.** *See* "Dishes,"

**House-building.** *See* "Buildings."

**Hubs or axle-boxes.** *See* "Axles."

**Hulks.** *See* "Ship-building."

**Hulling, decorticating and polishing grain and seeds:**

Rice, Whalley, 222.
Wheat for flour, Clark (*Cook*), 1019.
Disks of mills used in cleaning rice, &c., Twigge, 1693.
Feeding guards and elevators for maize shellers, Pison, 3092.
Chemically decorticating grain, Sézille, 3309.
Husking coffee and other fruits, seeds, &c., Patterson, 3455.
Vertical meal machine for rice dressing, Marsh, 3796.
Barley mills for dressing and cleaning rice, &c., Marsh, 3810.
Mill for decorticating and polishing, Buchholz, 4170.

**Hurdles.** *See* "Fences."

**Husking.** *See* "Hulling."

**Hydrants.** *See* "Watering."

**Hydraulic breaks.** *See* "Breaks for railways."

**Hydraulic lifts.** *See* "Hoists."

**Hydraulic motive-power.** *See* "Water-power."

**Hydraulic presses or rams:**

Or ram for making lead and other piping, Harrop, 485.
For raising permanent of railways, &c., Tangye, 967.
For seed crushing, oil expressing, &c., Downs, 1270.
Lifting accumulators for, Templar, 1434.
Constructing cylinders of, Davies (*Smith*), 1883.
For use in making gun-cotton, Mackie & others, 2062.
Constructing rams of, Perch & Higgs, 2452.
Stop cocks or valves for, Johnson, 2824.
For compressing steel, &c. in a fluid state, Whitworth, 3062.
For forging and pressing fluid metal, Whitworth, 3064.
Employing, for motive-power purposes, Walker, 3075.
Arranging, for capsuling bottles, &c., Clark (*Bosquet*), 3160.
Arranging telescopic tubes or rams for, Holden, 3193.
Horizontal or vertical accumulator, Higgs, 3237.
Cam arrangement for use with, McNabb, 3298.
For raising top ventilators in houses, Elsdon & Ayres, 3497.
Or apparatus for working guns, &c., Grenfell & Newman, 3667.
Presser plates of oil-cake presses, Hodge, 3608.
For compressing cotton, jute, &c., Mann (*Watson*), 3725.
Pumps and steam-engines for working, Dack, 3922.
Tables, cylinders and centre pieces of, Dack, 3922.
Double hydraulic baling press, Dack, 3922.
Arranging, for seed crushing, &c., Ayre & others, 4374.
For compressing cotton, jute, &c., Mann (*Watson*), 4427.
Fixing rams of, at any desired pressure, Weems, 4470.
Heating and cooling the plates of steam plate, Weems, 4470.

**Hydraulic rams or pumps.** *See* "Pumps."

**Hydrocarbons.** *See* "Oils (mineral)."

**Hydrochlorate of ammonia.** *See* "Alkalies."

**Hydrochloric acid.** *See* "Acids."

**Hydro-extractors.** *See* "Drying."

**Hydronettes.** *See* "Garden implements."

**Hydrostatic motors.** *See* "Water-power."

**Hydrostatic presses.** *See* "Hydraulic presses."

**Hydrothermic engines; hydrothermic motive-power:**

For working presses, Tommasi, 2896.
From expansion and condensation of liquids, Tommasi, 2897.
For working rivetting machines, Tommasi, 2907.
For working punching machines, Tommasi, 2908.
For propelling tram-cars, Tommasi, 3031.
For propelling tram-cars, Tommasi, 3476.

**Hygrometers:**

Recording variations in, Johnson (*Redier & Co.*), 1587.


## I.


**Ice (making).** *See* "Refrigerating."

**Ice-creams.** *See* "Confectionary."

**Ice-creepers:**

Simplifying the construction of, Bull (*Earle*), 3772.

**Igniting point of oils (testing).** *See* "Oils."

**Illusions (optical).** *See* "Optical instruments."

**Imitating oil paintings.** *See* "Pictures."

**Impersonations (character).** *See* "Character, &c."

**Impure waters (treating).** *See* "Manure."

**Incinerating substances:**
Removing vegetable matters from wool, &c., Brewer (*Joly*), 433.

**Incrustation (preventing).** *See* "Oxidation."

**Incubators; incubating:**
Arranging boilers for, Heaps & Wheatley, 2986.

**Indelible inks.** *See* "Inks."

**Indexing:**
System of, and copying deeds, &c. for, Dillon, 1935.
Constructing and working cabinet index, Dillon, 1935.

**India-rubber (treating and applying):**
Protecting from chemical action articles of, Quin, 63.
Bearings for wringers and mangles, Marshall & Crosskill, 118.
Rings for life buoys, Beverley, 175.
In making packing, Scaife, 176.
In moulding earthenware articles, Maw, 264.
For insulating purposes, Monckton, 265.
Knives & whetting rollers for cutting, Gilbee (*Boëthius*), 354.
Leyden jars of vulcanite, Bousfield (*Smith*), 380.
To warp beams and shuttle boxes, Pickup, 436.
To measuring screws of liquid meters, Everett (*Brooks*), 500.
Endless bands for locomotive driving wheels, Adorno, 512.
To pulleys and drums to prevent slip, Stone, 787.
Covers to ships' boats, Crowley & Blaiberg, 881.
To packing hose couplings, Newton (*Ashworth*), 904.
Composition for covering, Muratori, 931.
To railway signal apparatus, Tyer, 1013.
Tyres for bicycles and common road carriages, Grout, 1163.
To measuring screws of water-meters, Haseltine (*Read*), 1223.
To thermostats, Guest, 1225.
To removable bottle stoppers, Graham, 1259.
To electric light apparatus, Johnson (*De Mereanne*), 1446.
To button heads, Willock, 1578.
To wrappers or envelopes of seed presses, Searle, 1630.
To waterproofing leather, Frankenburg, 1650.
To railway break blocks to lessen vibration, Clark, 1666.
In moulding paper-pulp, Mesick (*Wheeler & Jerome*), 1701.
To apparatus for drawing off water, &c., Pontifex, 1733.
Bearings for centrifugal machines, Hepworth & Paulding, 1798.
To bottle capsuling machines, Scholz, 1878.
In making stuffing-box packing, Kirkman, 1896.
To lessen vibration on applying railway breaks, Clark, 1905.
To cylinders in finishing printed paper, Gill, 1945.
To acid pumps and pipes, Hazlehurst, 1957.
To securing stoppers in bottle necks, Cockburn, 1964.
To clamps, Price & Warn, 1986.
To blind pulleys, Festing, 2011.
To bearing or suspension springs, Johnson (*Le Luyer*), 2084.
In tapping gas mains under pressure, Rafferty, 2103.
Substitute for, ("Zapotine"), Conybeare & Naphegyi, 2106.
To making screws, Roberts, 2199.
To window sash holders or sustainers, Fletcher, 2227.
In transmitting power to machinery, Bourdin, 2232.
Substitute for ("Plastique"), Lake (*Bell*), 2250.
To vaginal injection canulas, De Savignac, 2279.
To carriage wheels, springs, &c. to prevent noise, Scott, 2290.
To railway breaks, to lessen shock, &c., Clark, 2293.
To railway and other carriages to lessen shock, &c., Clark, 2293.
To tips of weaving shuttles, Booth & Tetlow, 2310.
In making stair treads and paving blocks, Cotter, 2369.
To match igniting surfaces, Lake (*Meyer*), 2402.
To waterproofing wool felt, Job, 2433.
To pianos, to improve touch, Whiteman, 2453.
To washers for internal bottle stoppers, Coad, 2480.
Tubes to traction springs, Abel (*Fehrmann*), 2505.
To soles of boots and shoes, Bonneville (*Nevière*), 2590.
To making globe buffer springs, Lindblad & Edey, 2604.
To sugar refining apparatus, Wirth (*Langen*), 2606.
To rollers of clothes wringers, Whiteside (*Howlett*), 2682.
To junctions of glass and other pipes, Bycroft, 2704.
Springs for mattresses, sofas, chairs, &c., Welch, 2714.
To cartridge shells or cases, Pieri, 2727.
To compressed air cavity caps and pads, Reade & Hurd, 2747.
Making washers or packing pieces, Ingram, 2762.
To railway and other carriage springs, Byron (*Godley*), 2817.
Tyres for carriage wheels, Bird, 2836.
Spring for driving sewing-machines, Pierce & Hutton, 2871.
Compound sheets for coating iron, &c., Thomson & Watson, 2913.
To stocks, butts, locks, &c. of small-arms, Silver, 2938.
For buffers used in checking pickers, Smith, 2970.
With "mica" in making packing, Talling & Seccombe, 3048.
To packing blast-engine pistons, Gedge (*Soriaul*), 3077.
To capsuling bottles, &c., Clark (*Bosquet*), 3100.
To bottle-stoppers, Ryves, 3119.

**India-rubber (treating and applying)—*cont.***
To waterproofing fog signals, Jones, 3125.
To pump, surface condenser and other valves, Barker, 3164.
To horse-shoes, Cooke, 3321.
Door mats with insulated projections, Harris, 3433.
To bands, straps, washers, sheets, discs, &c., Ingram, 3437.
To surgical trusses, Monckton, 3509.
To paper and cloth for a packing material, Rourke, 3547.
Cutting out screws for liquid meters, Greenacre, 3672.
To bronzing machine cylinders, Leeming & others, 3704.
Tires for railway and tramway car wheels, Turner, 3794.
To protecting dresses, &c., Norwood & Cutler (*Murphy*), 3888.
To furniture casters, Parry, 3897.
Protecting from chemical action, articles of, Quin, 3902.
To diaphragms of meters, Richards, 3928.
To wood polishing and smoothing rollers, Wright, 4115.
To artificial palates, Johnson (*Peyer*), 4123.
To rakes of reaping and mowing machines, Tenwick, 4240.
Wringing and other machine rollers, Clark (*Decoudun*), 4263.
Substitute for ("Plastique"), Lake (*Bell*), 4343.
To valves of steam pump condensers, Saxby, 4436.
To soles and heels of boots and shoes, Dick, 4482.

**Indicating boiler pressure.** *See* "Gauges."

**Indicating heat of fluids:**
In steam or water heating pipes, Gottheil (*Oesten*), 6.

**Indicating position, &c. of axes at a distance:**
Axes of weather vanes, &c., Yeates, 4141.

**Indicating position of rudders.** *See* "Steering."

**Indicating rise of water in cisterns, rivers or tideways:**
Electric tell-tales for, Abel (*Redslob*), 168.

**Indicating speed of carriages:**
Automatic apparatus for, Wier, 1459.
By difference in pressure of fluids, Tower, 1872.
Automatic apparatus for, Wier, 2432.

**Indicating speed of machinery:**
Blower in winnowing machines, Drechsler, 133.
Governing, regulating and, Seyd, 377.
Marine and other engines, Reynolds, 515.
Revolutions of revolving shafts, Salomons, 584.
And regulating motion, Crickmer, 1097.
Air and fluid indicators for revolving axles, Halket, 1131.
Revolutions of rotating shafts and bodies, Barron, 1414.
Revolutions of rotating shafts, Lake (*Brown*), 1421.
Revolving machinery and rotating bodies, Wier, 1459.
Recording changes of speed, Johnson (*Redier & Co.*), 1587.
Revolutions of rotating shafts, Hogg, 1669.
Revolutions of steam-engines & machinery, Wimshurst, 1771.
Velocity of revolving shafts or spindles, Tower, 1872.
Revolutions of propeller shafts, &c., Everitt, 1880.
Engines and revolutions of paddle and screw shafts, Barr, 1881.
Revolutions of engines or machines, Whitehouse, 1892.
Revolutions of shafts and revolving surfaces, Jerson, 1903.
Revolutions of engines & machinery, Brown & Woodcock, 1908.
Revolutions of engines, shafts and machinery, Muirhead, 1909.
Rate of rotation of revolving shafts, Taylor, 1960.
And revolution of screw or paddle shafts, Walker, 2003.
Revolving and other moving objects, Wier, 2432.
Running too high or stopped, Clark (*Lartigue*), 3771.

**Indicating speed of rivers:**
Automatic apparatus for, Wier, 1459.
Automatic apparatus for, Wier, 2432.

**Indicating speed of ships.** *See* "Ships' logs."

**Indicating sudden changes of pressure:**
In pipes or reservoirs, Clark (*Lartigue*), 3771.

**Indicating weight.** *See* "Weighing."

**Indicators (distance).** *See* "Registering."

**Indicators (passenger).** *See* "Registering."

**Indicators (street name).** *See* "Sign, &c."

**Induction coils.** *See* "Electricity."

**Infants' feeding bottles.** *See* "Bottles."

**Inflammable liquids and oils (testing).** *See* "Oils."

**Inflammable substances (storing).** *See* "Magazines."

**Inflating balloons.** *See* "Aërial-machines."

**Infusions.** *See* "Extracts."

**Inhaling.** *See* "Medical treatment of man."

**Injectors for steam-boilers:**

For varying pressures, Budenberg (*Schäffer & Budenberg*), 327.
Dispensing with packing in valves, Bayley & Bayley, 897.
Combination and arrangement of, Webb, 1135.
Automatic feeder, Lake (*Renshaw*), 1300.
Constructing, &c., Hunt (*National Tube Works Co.*), 1647.
Combined heat and water injector, Holt, 3226.
Combining filtering apparatus with, Berryman, 3306.
Operating, by suction, Johnson (*Vabe & Cuau*), 3807.

**Ink guard for pens.** *See* "Pens."

**Inks; inkstands; ink pads:**

Printing, Clark (*Rogers*), 208.
Combination inkstand, Shedlock, 558.
Papyrographic ink and pad solution, De Zuccato, 1078.
Printers' inking rollers, Mann & others, 1640.
Indelible, Tongue (*Gaffard*), 1839.
Printing ("Asteatine"), Clark (*Cré*), 1995.
Preparing, from aniline products, Casthelaz, 2009.
Spring hinge for inkstand covers, Wood, 2123.
Barometer inkstands, Brower, 2198.
Printers' inking rollers, Morgan-Brown (*Osgood*), 2375.
Obtaining tannin for making, Newton (*Mitscherlich*), 2939.
Papyrographic ink and pad solution, De Zuccato, 3150.
Inkstands of "nickelised" iron, Monckton, 3509.
Ink for chemical copying telegraphs, Clark (*Sawyer*), 3935.
Inkstands, Jacobsohn, 3975.
Atmospheric inkhorns or inkstands, Tongue (*Mallat*), 4006.
Ink-pencil for copying purposes, Petit, 4090.
Obtaining black for making, Knab, 4421.

**Inlaying; inlaid work:**

Composition for forming mosaics, Deléon, 525.
Producing plates for inlaid work, Placet, 1807.
Imitation mosaic work, Hawksworth, 1968.
Inlaid or mosaic tiles, Holland, 2470.
Imitation marquetry and inlaid work, Hughes, 2593.
Making mosaic sheet and plate glass, Hyatt, 2752.
Paving tiles, Roettger, 3008.
Ornamenting surfaces to appear like, MacEwan, 3105.
Imitating mosaic work of old church windows, Hyatt, 3171.

**Insects (destroying and protecting from):**

Articles or materials, Johnson (*Cambon & Co.*), 18.
By steam and chemical vapours, Pourchè, 185.
By ozonising, Monckton, 265.
Composition for, on animals, plants, &c., McDougall, 2208.
Antiseptic fertiliser for, Newton (*Chesebrough*), 2451.
Compound for neutralising the "phylloxera vastatrix," Gray (*Cahuc & Soulages*), 3984.

**Insulating; insulators:**

Telegraphic conductors and materials for same, Truman, 124.
Armatures, iron ships, wires, &c. & compound, Monckton, 265.
Telegraphic conductors, Walker, 293.
Compound for, telegraph wires, Macintosh, 447.
Asbestos supports for telegraph wires, Hyatt, 478.
Telegraph wires by envelope of compressed air, Prall, 979.
Submarine and other telegraphic cables, Zanni, 1855.
Mounting insulators on telegraph poles, Muirhead, 2074.
Telegraph wires, Conybeare & Naphegyi, 2106.
Walls, &c. of buildings, Brannon, 2128.
Springs of carriages, Scott, 2290.
Submarine cables, Highton, 3006.
Inks for chemical copying telegraphs, Clark (*Sawyer*), 3935.
Forming lugs or claws on telegraphic, Sterne, 3974.
Handles of tea & coffee-pots, &c., Clark (*Tiffany & Co.*), 4034.
Fixing, &c. to telegraph poles, Slade & Slade, 4360.

**Intrenchments.** *See* "Trenches."

**Invalid furniture.** *See* "Furniture."

**Invalids' feeding bottles.** *See* "Bottles."

**Iron & steel ware (rendering passive).** *See* "Oxidation."

**Iron (making).** *See* "Smelting."

**Ironclads.** *See* "Ship-building."

**Ironing; irons:**

Grip, flat iron heater and guard, Long, 613.
Charcoal box iron hinges, Perks & Perks, 856.
Stove for, Peacock, 1065.
Irons and ironing machines, Sanson, 1418.
Smoothing irons to be heated by gas, Pfeifer, 1638.
Irons and ironing machines, Lake (*Cottingham*), 1730.
Box smoothing irons, Warner & others, 2076.
Stove for heating flat irons, Bainbridge & Pinkney, 2112.

**Ironing; irons—*cont.***

Combined smoothing, polishing and fluting iron, Cramp, 2340.
Hat ironing or finishing machine, Clark (*Brand*), 3072.
Reversible box irons and heating same, Stichbury, 3454.
Box irons and heating same by gas, Hollands & Cubitt, 3741.
Gas-heated smoothing irons, Paris, 3905.
Air-gas apparatus for use in connection with, Paris, 3906.
Iron for use in wiring bonnet shapes, Bowyer & Strupp, 4019.
Machines for collars, cuffs, &c., Newton (*Wiles & Adams*), 4062.
Solid rubber rolls for, machines, Clark (*Decoudun*), 4088.
Iron for pressing and finishing hats, Spence (*Corey*), 4451.

**Ironmongery (ornamenting).** *See* "Ornamenting."

**Irrigating or watering.** *See* "Watering."

**Issuing tickets.** *See* "Tickets."

**Ivory.** *See* "Bone."


## J.


**Jacks or lifting jacks.** *See* "Hoists."

**Japanning; japanned wares:**

Ornamenting in arabesque or other designs, Wood, 339.
Applying japanned metals, Hughes, 2593.

**Jars and pots:**

Making, from pressed powdered clay, Maw, 264.
Expanding stoppers or covers for, Thompson, 276.
Magnetic air-tight stoppers, Hickisson, 279.
Stoppers for, with clips or straps, Thompson, 561.
Invisible springs for covered preserve, Zalkind, 742.
Stoppers for, Edwards, 1617.
Filling and corking, Reynolds & Reynolds, 1723.
Packing and material for packing, Ivimy (*Long*), 1897.
Forming screw threads on earthenware, Buchan, 2169.
Fluted paper packing for, Ivimy (*Long*), 2600.
Securing covers on, Hill, 2915.
Expanding locking stoppers for, Thompson, 2961.
Hydraulic capsuling apparatus for, Clark (*Bosquet*), 3148.
Stoppers for, Cherry & Cherry, 3219.
Forming earthenware, Murray & Crighton, 3422.
Labelling, Martin, 3522.
Stoppers for, with sliding wing pieces, Thompson, 3534.
Cutting out wooden, Johnson (*Goulas & Co.*), 3583.
Artificial skins for labels and covers of, Brown, 4489.

**Jet apparatus for impelling, forcing, exhausting, &c.:**

Steam-jet for compressing, &c. fluids or gases, Körting, 347.
Steam-jet elevator for fluids, substances, &c., Körting, 3504.
Funnel for sticky and wet substances for, Körting, 3504.
Steam or fluid jet for ventilating, cooling, &c., Körting, 3506.
Air jet exhauster for ventilating carriages, Körting, 3506.
For blowing & increasing draught in furnaces, Körting, 3506.
Steam jet air compressing apparatus, Körting, 3507.
Steam jet for sizing machines, Newton (*Groshens*), 3797.

**Jewellery:**

Brooches and fastenings for same, Walton, 419.
Securing pins and protecting points in brooches, Perks, 538.
Arranging springs in hinges of lockets and, Zalkind, 742.
Fastenings for articles of, Kendrick, 746.
Swing seals for Albert and other chains, Wilcox, 759.
Fancy chains, Rollason & Wood, 784.
Fastenings for scarf rings, Bricknell, 796.
Scarf pins, lockets, earrings, brooches, &c., Bennett, 945.
Spring back for brooches, bracelets, &c., Barrett, 955.
Detaching ornaments from articles of, Reading, 994.
Clasp or fastening for bracelets, &c., Webling, 1127.
Cases for displaying trinkets and, Holtermann, 1697.
Breast-pin stems, Thorpe & Young, 1699.
Ornamenting plates for, Placet, 1807.
Fastenings for solitaire and drop earrings, Hassler, 1904.
Fastenings for articles of, Carter & Ashwin, 2121.
Fastenings for articles of, Carter & Ashwin, 2261.
Constructing and fastening articles of, Kendrick, 2333.
Fastenings for articles of, Brooks, 2443.
Securing bracelets, necklaces, &c., Jefferys, 2596.
Fastenings for bracelets, &c., Dowler & Smith, 2608.
Fastenings for articles of, Richards, 2788.
Locking and protecting brooch and like pins, Schroeder, 2832.
Breast pins with detachable heads, Nicole, 3188.
Fastenings for articles of, Pendleton, 3221.
Fastenings for articles of, Brown, 3383.
Fastenings for articles of, Heilborn, 3363.
Attaching together parts of, Pendleton, 3478.
Secret link chains, Mole, 3480.
Electro-plating and gilding articles of, Monckton, 3502.
Fastenings for earrings and ornaments, Brandon, 3584.

**Jewellery**—*cont.*
Fastenings for articles of, Cutler, 3679.
Fastenings for scarf rings, lockets, &c., Sutton, 3706.
Crescent backs of dress ornaments, Jefferys, 3770.
Fastenings for dress ornaments, Reading & Reading, 3936.
Lathes for forming oval brooches, Phillips, 4082.
Brooch fastener, Aslin & Warner, 4250.
Brooches, veil fasteners, dress ornaments, &c., Bale, 4292.
Lockets, scarf pins and brooches, Clark (*Ulmann*), 4356.
Bracelets and necklaces, Clark (*Ulmann*), 4356.

**Jigging cloth.** *See* "Finishing fabrics."

**Joining driving belts.** *See* "Bands."

**Joining fence wires.** *See* "Fences."

**Journal-boxes.** *See* "Axles."

**Journals.** *See* "Axles" and "Shafts."

**Jugs, mugs and pitchers:**
Ornamenting vase ewers, Brock, 1562.
Double lipped, to prevent smearing, Lake (*Irwin*), 1564.
Of "nickelised" iron, Monckton, 3509.

**Jujubes.** *See* "Confectionary."

**Junction rings.** *See* "Nuts, washers, &c."

**Jute.** *See* "Fibres" and "Spinning."

## K.

**Kaleidoscopes.** *See* "Optical instruments."

**Kamptulicon.** *See* "Floor-cloth."

**Kegs.** *See* "Casks."

**Kerfing and cutting pasteboard.** *See* "Cutting."

**Kettles.** *See* "Cooking."

**Key spanners.** *See* "Wrenches."

**Keys.** *See* "Locks."

**Kilns.** *See* "Ovens."

**Kindling fires.** *See* "Fuel (firelighters)."

**Kitcheners.** *See* "Fireplaces."

**Knapsacks:**
Using sheet metal in making, Hirschmann (*Philipp*), 3209.

**Knee caps for miners.** *See* "Mining."

**Knife boards.** *See* "Knives."

**Knitting; knitting-machines:**
Ayrshire or Scotch bonnets, Russell, 159.
Rotary or flat, Mellor & Woodward, 639.
Arranging and combining, for hosiery, &c., Cotton, 713.
Heddle yarns to rig-bands, Lake (*Sladdin*), 719.
Stockings, &c. in a tubular form, Hancock, 728.
Forming the meshes, Gottheil (*Schmitt*), 757.
Sewing-machine adapted for, Vosper, 1184.
Conical or tapering fabrics, Robertson, 1327.
Plain, ribbed or striped looped fabrics, Scattergood, 1342.
General construction of, Wirth (*Angst*), 1374.
Rotary family, Morgan-Brown (*Bickford*), 1392.
Scotch caps or bonnets, stockings, &c., Hands & Scampton, 1830.
Magnetising socks, stockings, &c., Lyon, 1954.
Nets for fishing, &c., Lake (*Arnold*), 2138.
Machinery for, and making knitted fabrics, Barton, 2335.
Stripes, &c. in circular hosiery, Smith (*Poron & Poron*), 2774.
Circular machines for, fancy hosiery, Marshall, 2809.
And shaping stockings in circular frames, Appleton, 2858.
Elastic looped fabrics in circular frames, Belshaw, 3059.
Circular, for hosiery and cloth, Bradley, 3255.
Ribbed and plain tapering fabrics, Robertson, 3256.
Mail or other kinds of healds, Carr, 3313.
And fashioning "pant" and other fabrics, Cotton, 3409.
Sewing selvaged hosiery and, Guivet, 3572.
Scotch bonnets and plain and fancy hosiery, Tilley, 3809.
Or weaving lamp mats, tidies, &c., Curtis (*Hosmer*), 3941.
For crimping wool, hair, &c. for hair pads, &c., Thompson, 3986.
Circular machines for, ribbed and plain work, Rowlett, 4062.
Automatic, for striping stockings, &c., Lamb & Lowe, 4074.
Automatic locking mechanism for, Lamb & Lowe, 4074.

**Knitting; knitting-machines**—*cont.*
Producing odd courses for hose welts, Lamb & Lowe, 4074.
Stockings, drawers, &c., Henderson (*Auroy*), 4105.
Circular machines for, ribbed looped fabrics, Raven, 4266.
For tubular work, coverings, &c., Churchill (*Tiffany*), 4309.

**Knives; knives and forks:**
For splitting hides or skins, Haley, 616.
Working revolving brushes for cleaning, Egerton, 617.
Combination knife sharpener, Clark (*Taft*), 780.
Securing handles to blades or prongs, Tyzack, 992.
Grinding and polishing, Ellis, 1021.
Barrel or case for pocket and other, Staniforth, 1274.
Grinding and sharpening reaper and other, Riches, 1301.
For cutting laces and thongs, Gedge (*Rigaux*), 1678.
Silver-like alloy for making forks, Parkes, 2064.
Making cast steel knives, Johnson, 2094.
Combination knife sharpener, Clark (*Taft*), 2271.
Rotary knife cleaner, Bower, 2317.
Compound for making knife boards, Holland, 2470.
Combined knife, turn screw, railway key, pen, &c., Wigg, 2578.
Grinding, for fleshing hides, Johnson (*Breval*), 3096.
Handles for knives, forks and table cutlery, Hoyland, 3239.
Convertible machine for sharpening, Townsend, 3456.
Nickelised iron cutlery, Monckton, 3509.
Cleaning and polishing machine, Kent, 3756.
For opening oysters, &c., Alexander (*Ménier*), 3814.
For reaping and mowing machines, Osborn, 4208.

**Knobs:**
Moulding, of plastic clay, Gaskell & Gaskell, 1345.

**Knobs for doors.** *See* "Doors."

**Knobs for drawers.** *See* "Furniture."

**Knots (porters').** *See* "Pads."

**Knots (tying):**
Mechanism, for reaping machine binders, Horton, 4056.

## L.

**Labels:**
Cancelling bottle, Napier, 131.
Enamelling iron, Robinson, 1356.
Eyelets for direction, Elsam (*Pultz & Walkley*), 1577.
Safety pin fastener for, Pulvermacher, 2172.
Affixing, on bottles, jars, curved surfaces, &c., Martin, 3522.
Gumming, Read, 4246.
Artificial skins for, Brown, 4459.

**Laboratories:**
Vessel to obtain infusions or decoctions, Hutchinson, 756.

**Lace; lace-making machines:**
Construction of twist lace machines, Johnson, 76.
Chantilly cloth by the "Leaver" machine, Sival, 190.
Adding a "purl" after making, Yates, 197.
Fabrics used in upholstery, ribbons, &c., Sival, 218.
Carriages used in bobbin net or twist lace, Jardine, 902.
Actuating carriages in, Mosley, 1180.
Ornamenting warp lace (lap net), Dawson, 1305.
Combined knitting and lace machine, Scattergood, 1342.
Using "gauze bottom" in, Smith (*Sival, frères*), 1576.
Working thick or ornamenting thread, Scott & Trueman, 1850.
Ground work or tissue for twist lace, Messrs. Topham, 2620.
Bobbin and carriage for twist lace machines, Booth, 2859.
Ornamental single Mechlin, in twist machines, Butler, 2992.
Crimping, creasing, &c., Senier & Harwood (*Desterbecq*), 3265.
Bobbin net or twist lace machines, Whitehouse, 3527.
Weaving fabrics resembling net or lace, Strang, 3651.
With borders or edges entire, Steegmann & Steegmann, 3668.
Spotted, sprigged or figured net without clips, Burton, 3850.
Weaving towels, quilts, &c. in lace machines, Wright & Fox, 3903.
Twist lace machines, Newton, 4066.
Pushers, &c. of bobbin net machines, Clark (*Gérard*), 4294.

**Lactometers.** *See* "Testing."

**Ladders:**
Telescopic, Hawkings, 2069.
Portable folding, Frémy, 3020.
Splints, &c. for repairing, Tongue (*Devriès*), 4361.

**Ladles and spoons.** *See* "Spoons."

**Lamp black:**
For printing ink, Clark (*Rogers*), 208.
Furnaces and pans, Clark (*Rogers*), 208.

**Lampascopes.** *See* "Optical instruments."

**Lamps; lanterns; lamp furniture:**

Railway carriage oil, Curtis (*Williams & Page*), 24.
Ships' signal, Westrup, 39.
Hydro-carbon oil, Lighbody, 117.
Swinging holders or carriers for, Derry, 135.
Preventing oil heating in the body of, Teale, 195.
Household hand, Siddall & Gutteridge, 243.
Self-revolving advertising, signalling, &c., Abrahams, 251.
Household, Lake (*Leighton*), 261.
Constructing and attaching carriage, Howes & Burley, 303.
Outside or shop front oil, Tandy & Dryden, 347.
Frames of asbestos fireproof pasteboard, Hyatt, 478.
Wick tubes, Lighbody & Lighbody, 523.
Incombustible asbestos wicks, Hynam, 615.
Railway, ship, signal and other oil, Jones, 668.
Locking miners' safety, Pilkington & Addison, 699.
Miners' safety, signal, railway, ship and other, Landau, 768.
Combined lamp, girandole or chandelier, Souchard, 773.
Lighting, signalling and optical, Souchard, 773.
With gas carburetting chambers, Weston, 810.
Oil and spirit, Aronson, 817.
Street and signal, for burning hydrocarbon oils, Tandy, 874.
Oil, for lighting, heating and signalling, Rippingille, 920.
Signal hand lantern, Clark (*Davies*), 952.
Protecting from explosion, petroleum and other, Hendrix, 1011.
Working ground and distant railway signal, Tyer, 1013.
Gaseliers, top roof or "sun lights," Kilpatrick, 1015.
Stove used for lighting, Peacock, 1065.
Railway, signal, ship & other oil, Stockman & Bennett, 1077.
Paraffin and other hydro-carbon oil, Hinks & Hinks, 1114.
Lighting wicks by electricity, Voisin & Dronier, 1169.
Filling and indicating when full, oil, Wright, 1185.
Regulating light in benzoline and other, Callaghan, 1197.
Self igniting submarine light, Silas, 1218.
Conveying oil or spirit to burners of, Sweeney, 1624.
For burning volatile oils or spirits, Sweeney, 1624.
Raising and lowering gaseliers & chandeliers, Kaulbach, 1629.
Wicks of felted animal or vegetable fibres, Lefebvre, 1637.
Hanging and sealing gaselier tubes, Stuart (*Stuart*), 1670.
Perforated glass shades or globes, Stuart (*Stuart*), 1670.
Fastenings for carriage lamps, Neale, 1747.
Supplying oil to lamp-burners, Bennett, 1765.
For signalling by the "Clapptograph" code, &c., Clapp, 1950.
Railway carriage roof and other oil, Tandy & Dryden, 1952.
Converting flat into round wicks, Kauffmann (*Kleemann*), 2008.
Gaseliers and raising and lowering same, Harrington, 2026.
Railway signal lanterns, Chambers, 2045.
Galleries; fixing globes; supporting smoke disc, Lack, 2049.
Liquid fuel apparatus for lighting, Johnson (*Thorp*), 2100.
Reflecting hood for reading and other, Parkes, 2162.
Burners for hydro-carbon oil, Defries, 2166.
Ships' flash light signal, Doty, 2170.
Sockets for carriage, Scott, 2290.
Railway flash signal, Clark (*Universal Signal Light Co.*), 2390.
Fitting and working gaseliers, Harrington & Brent, 2554.
Miners' safety, Clark (*Tappan*), 2579.
Mineral oil, Wise (*Lafaurie & Potel*), 2650.
Railway carriage, Wise (*Lafaurie & Potel*), 2650.
For burning oils with or without wicks, Baudelot, 2691.
Increasing ventilation of "sun-lights," Rigby & Rigby, 2692.
Arranging gallery, &c. of, to move up and down, Aronson, 2878.
Securing glass in, without putty or cement, Hulett, 2894.
Opening, closing, lighting, &c., miners' safety, Teale, 2914.
Suspending, &c. chandeliers, Lotz (*Bradley & Hubbard*), 2952.
Roof, ship, signal, street and other, Silber, 2968.
Safety hand oil lamps for lighting gas, Whitworth, 3070.
Cone or burner for, Clark (*Granier*), 3086.
Oil, with shadowless burners, Clark (*Granier*), 3145.
Supplying air to railway carriage and mining, Martin, 3165.
Forming lanterns to receive glasses, Hyatt, 3171.
Chalk burners saturated with petroleum, Punshon, 3200.
Supplying air to railway, mine and signal oil, Martin, 3247.
Arranging railway car globes to open inside, Martin, 3247.
Street and other, Parkman (*Forbes*), 3379.
Self-lighting and extinguishing chamber, Trotter, 3404.
Applying water dish to, and cooling reflectors of, Parkes, 3464.
Correcting colour of light emitted by, Parkes, 3464.
Railway carriage, signal and other oil, Smith, 3473.
Safety apparatus for chandelier chains, &c., Taplay, 3500.
And chandeliers of "nickelised" iron, Monckton, 3509.
Railway carriage, signal and marine oil, Doty, 3605.
Galleries; fixing globes; supporting smoke disc, Lack, 3611.
Railway carriage oil, Dore, 3709.
Fuse & ignition mechanism, &c. for, Chandor (*Leonard*), 3717.
Railway carriage oil, and fountain, Defries, 3749.
Lighting railway cars outside, Lemeunier & Martin 3791.
Railway carriage oil, and lighting same, Martin, 3838.
Lighting streets while burning sewer gases, Harding, 3859.
Utilising street, for burning sewer gases, Matthews 3868.
Acoustic burners for, Clark (*Kastner*), 3879.
Pyrophones in form of gaseliers, &c., Clark (*Kastner*), 3879.
Reflectors for, to indicate street names, &c., Parkman, 3882.
Reservoir and sliding dipping vessel for duplex, Mason, 4004.
Lighting apparatus, Ritchie, 4043.

**Lamps; lanterns; lamp furniture—*cont.***

Combined extinguisher and flame spreader, Rhind, 4069.
Or stoves for heating and cooking, Lotz, 4132.
Indicating street names, &c. on lamps, Holness, 4149.
Illuminating apparatus for dentists, &c., Stewart, 4173.
Perforating galleries or glass-holders, Sugg, 4227.
Obtaining light from flints and steel, &c., Cave, 4251.
For burning heavy oils, Johnson (*Hitchcock & others*), 4293.
Supplying oil and air to, Johnson (*Hitchcock & others*), 4293.
Railway carriage, moderator & other oil, Tandy & Smith, 4298.
Inserting, adjusting & retaining wicks, Tandy & Smith, 4298.
Partially carbonised wicks for, Shaw (*Halvorson*), 4318.
Self-acting arrangement for raising oil to wick, Weir, 4338.
Ornamenting chandeliers, Clark (*Ulmann*), 4356.
For using electric light for illuminating, Woods, 4433.
Incombustible asbestos wicks, Protheroe (*Protheroe*), 4442.
Gas lamp ventilators for buildings and sewers, Hogg, 4446.

**Lancets.** *See* "Surgery."

**Land cultivators.** *See* "Tilling."

**Landing stages.** *See* "Platforms."

**Lanterns.** *See* "Lamps."

**Lap machines.** *See* "Spinning (batting)."

**Lard:**

Rendering, purifying and bleaching, Miller (*Brown*), 96.
Pressing, Clark (*Marshall*), 1328.
Substitute for, in cooking, making bread & pastry, Reid, 2314.
Cutting and gauging, Haseltine (*Richards*), 3022.
Purifying, Speir & Mather, 4386.

**Lasting boots and shoes.** *See* "Boots and shoes."

**Latches.** *See* "Locks."

**Lathes.** *See* "Turning."

**Latitude and longitude:**

Instrument for indicating on maps, Tillman, 234.

**Lattice and trellis work:**

For builders, gardeners, poulterers, &c., Stevenson, 4239.
For seating, fencing, ground covering, &c., Stevenson, 4239.

**Lavatories:**

Controlling and preventing waste of water in, Charles, 332.
Graduated tap for supplying hot and cold water, George, 949.
Arrangement and combination of, Smeaton & Tylor, 1025.
Valves, for preventing water-waste, Connell, 2274.
Convertible box, table, washstand, &c. for tents, Ritchie, 2271.
Heating water for, Mouly, 2566.
Washing-basins of "nickelised" iron, Monckton, 3509.
Flushing fan for scouring basins of, Finch, 3555.
Valve for regulating water-supply, Pollard & Carter, 3729.
Arranging ("school board lavatory"), Tylor, 3735.
Regulators and valves or waste preventers for, Powell, 4411.

**Lawn-mowers.** *See* "Reaping."

**Lays (weaving).** *See* "Weaving."

**Lead (desilvering, &c.).** *See* "Smelting."

**Leaf turners.** *See* "Books."

**Leather:**

Staples for uniting, Morgan-Brown (*Kenistou*), 5.
Treating splits and fleshes of skins, &c., Harrington, 71.
Fleshing, scudding, &c., hides and skins, Ellis & Redgate, 172.
Making mats from waste, Belier (*Rouillier*), 213.
Guillotine machine for cutting, Somerville & Crombie, 363.
Hardening and waterproofing, Murdoch, (*Picard*), 454.
Preserving eggs for dressing, Johnson (*Lissagaray*), 455.
Squeezing liquid matter from spent tan, Hall, 468.
Friction buckles for leather strings, Dethion, 542.
Knives for splitting hides or skins, Haley, 616.
Waterproof mastic for coating, joining, &c., Bagean, 642.
Sewing wet and untanned hides, Baker, 666.
Hook or fastening for leather work, Clark (*Gruf*), 875.
Stamping out and embossing press, Waterman, 904.
Using wire in sewing, Clark (*Bourdois*), 1042.
Tanning hides and skins, Herveux, 1151.
Tawing or dressing skins, Gedge (*Molinier*), 1196.
Boiler and receiver for use in tanning, Gedge (*Pabas*), 1198.
Dressing machines, Morgan-Brown (*Caller*), 1291.
Utilising waste cuttings for compressed, Bentley, 1473.
Artificial ("vegetable leather"), Muratori, 1534.
Waterproofing and preparing, Frankenburg, 1650.
Cutting and shaping laces and thongs, Gedge (*Bigeaux*), 1671.
Cutting and paring for driving belts, &c., Wheelhouse, 1[illegible].
Washing and "burring" sheep skins, Plenty, 1941.
Cutting ends of straps for joining, Bateman, 1979.

**Leather**—*cont.*
Substitute for ("Plastique"), Lake (*Bell*), 2250.
Composition for coating cloth, &c. to imitate, Thomson, 2251.
Agent for unhairing hides and skins, Bentley, 2262.
Removing gases in sweating hides, Johnson (*Silliman*), 2520.
Rubbing, scudding, fleshing, striking out, &c., Storer, 2527.
Preserving hides in vessels' holds, Monckton, 2581.
Using peat liquor or water for tanning, Monckton, 2581.
Hardening and waterproofing, Murdoch (*Picard*), 2686.
Separating wool or hair from skins, De Montoison, 2746.
Causing slow flow of liquor in tanning, Hamlyn & Farrer, 2888.
Crimping or folding, Cheesbrough (*Platts & Walden*). 2928.
Obtaining tannin for, Newton (*Mitscherlich*), 2939.
Rounding, for reins, traces, &c., Lake (*Osborne*), 3045.
Fleshing or scraping hides or skins, Johnson (*Breval*), 3096.
Ornamenting, to appear like inlaying, MacEwan, 3105.
Crimping, creasing, &c., Senier & Harwood (*Desterbecq*), 3265.
A coating for cloth to imitate, Hunstone & Thorpe. 3429.
Making "American leather cloth," Hunstone & Thorpe, 3429.
Applying electricity in tanning, Johnson (*Méritens*), 3431.
Substitute for, or artifical leather, Meech, 3484.
Waterproofing, by a lining of tin foil, &c., Drury, 3574.
Utilising spent tan, Murdoch (*Honnaij*), 3583.
Recovering matters from waste waters, Mackay, 3751.
Shaving or removing hair or wool from skins, Monks, 3834.
Scudding fleshing, shaving, &c. skins and hides, Turner, 3856.
Substitute for, Wilkinson, 4026.
Making, curing or ripening leather cloth, Thomson, 4029.
Depilating hides or skins, Conyers & Pullein, 4198.
Tanning hides and skins, De Montoison, 4267.
Perfuming and producing light colored, De Montoison, 4267.
Waterproofing and strengthening, Bird, 4295.
Substitute for ("Plastique"), Lake (*Bell*), 4343.
Treating curried leather cuttings or waste, Murphy, 4355.
Studs or ornaments for articles of, Clark (*Ulmann*), 4356.
Testing quantity of tannin in bark, &c., Gedge (*Beaudet*), 4423.
Agent for unhairing hides and skins, Bentley, 4452.
Artificial skins, from waste pieces of skins, &c., Brown, 4459.
Artificial vellum, parchment and leather, Brown, 4459.

**Leaves** (obtaining infusions from). *See* "Extracts."

**Leggings**:
Hooks and studs of fasteners for, Clarke, 1385.
Artificial or "vegetable" leather for, Muratori, 1524.
Waterproofing leather for, Frankenburg, 1650.
Clips, slides or fastenings for, Jones, 2851.
Combined boot and legging, Plant, 4033.
Buttons for gaiters, Mac Millan, 4071.

**Lengthening vessels.** *See* "Ship-building."

**Lenses**:
Portrait and optical, Wirth (*Steinheil & Steinheil*), 1124.

**Letter-envelopes.** *See* "Envelopes."

**Letter-press printing.** *See* "Printing paper."

**Letters & other enclosures** (sealing). *See* "Sealing."

**Letters and numerals**:
Moulding glass, Greener, 268.
Coating or background for, on glass, Hartley, 3084.
For street and other indicators, Holness, 4140.

**Levels.** *See* "Mathematical instruments."

**Lewises.** *See* "Hoists."

**Leyden-jars.** *See* "Electricity."

**Lichenized wadding.** *See* "Wadding."

**Life-boats**:
Compound for and constructing, Brannon, 2028.
Applying buoyant chambers to sides of, Key, 2685.
With a suspended watertight compartment, Noad, 2934.

**Life-buoys and preservers**:
Air beds used as, Cotter, 1.
Circular or annular, Beverley, 175.
Combined mattress and life-raft, Swale, 340.
Combined dress and air-buoy, Lake (*Poole*), 473.
Jacket or waistcoat ("The Natateur"), Gosselin, 514.
Life-raft or wreck life-boat, Hicks, 544.
Cushions for, Bonneville (*Wacker & Boll*), 647.
Self-igniting signal for, Silas, 1218.
Self-igniting signal for ("Rescue signal"), Holmes, 1324.
Constructing "life-buoy boats," Holmes, 1370.
Constructing, steering and propelling portable rafts, Jell, 1378.
Raft and boat-like life-buoy, Gillett, 2528.
Life or treasure preserving mattress, Torrence, 2649.
Life-saving costume ("The Natateur"), Gosselin, 2679.
Inflated waterproof sleeves, Lake (*Tryon*), 2755.

**Life-buoys and preservers**—*cont.*
Appliance, servicable as a bolster, &c., Woods & Stevens, 3035.
Self-inflating life-belt, Count de Liancourt, 3599.
Employing ship's rails or bulwarks as, Mead (*Newbery*), 4409.
Life-saving apparatus, Levett, 4461.

**Lifts; lifting and raising.** *See* "Hoists."

**Light** (electric). *See* "Electric-light."

**Light ships.** *See* "Ship-building."

**Lighthouses; beacons; coast lights**:
Burners for lamps of, Hearson, 167.
Composition for colored lights, Johnson (*Lamarre*), 214.
Fog signals and alarm bells for, Pattison, 249.
Self-revolving lamps for, Abrahams, 251.
Electric light apparatus for, Johnson (*De Mersanne*), 1446.
Adapting "hour glass reflectors" to lamps, Clapp, 1950.
Compound for and constructing beacons, Brannon, 2028.
Constructing columns for erecting, Johnson (*Hill*), 2398.
Pontoons for lifting, &c. material in building, Darley, 2782.
Forming frames of, to receive glasses, Hyatt, 3171.

**Lighting; producing light.** *See* "Lamps."

**Lighting gas.** *See* "Gas (lighting)."

**Lignolite.** *See* "Wood."

**Lignolithite or "Wood-stone."** *See* "Stone."

**Lime and its compounds**:
Chloride of, Monckton, 285.
Carbonate of, Molloy & Fitzgerald, 266.
Packing chloride of lime, Lake (*Bush*), 799.
Quicklime for purifying gas, Forbes, 800.
Recovering, in gas-making, Forbes, 1200.
Grinding chalk or carbonate of, Willans, 1612.
Treating phosphates of, Vaughan (*Huytteus de Terbecq*), 1644.
Obtaining sulphate of, Hunter, 1811.
Obtaining sulphate and treating phosphates of, Tanner, 1915.
Combining lime & white lead manufactures, Lake (*Meylert*), [2006.
Treating phosphates of, Vaughan (*Huytteus de Terbecq*), 2168.
Obtaining sulphate of, Vaughan (*Huytteus de Terbecq*), 2168.
Obtaining carbonate or sulphate of, Thomas (*Girard*), 2347.
Obtaining sulphite of lime, Henry (*Faucheux*), 2493.
Preparing superphosphate of, Giebermann, 2547.
Producing bisulphite of, Payne, 2893.
And quicklime for purifying gas, Forbes, 3232.
Decolorising acetate of, for various acetates, Condy, 4037.
Producing bi-sulphite of, Hunt (*Girdwood*), 4153.
Obtaining sulphates from "gas lime," &c., Goodall, 4158.
Making chlorine for chloride, Wirth (*Hasenclever*), 4291.
Reburning carbonate of, for re-use, Scott, 4305.
Obtaining phosphate of, Scott, 4305.
Making bleaching powders, Speir & Mather, 4386.
Obtaining sulphate of, Clarke & Smith, 4448.

**Lime kilns.** *See* "Ovens."

**Liniments.** *See* "Medical treatment."

**Linings for carriages.** *See* "Carriages."

**Links and shackles**:
For chains, Clark (*David*), 975.
For harness, Winter, 1081.
For coupling machine belting, Chase, 1918.
Coiled, for wire belting, Greening & Greening, 2019.
Shackles for railway couplings, Cook, 2096.
Drawlinks for railway couplings, Bauer, 2158.
Dies, for welding, &c., Gray & Taylor (*Selden*), 2772.
Steel, for chains or cables, Handyside, 2837.
For chain cutters of coal cutting machines, Alexander 3009.
For combined automatic buffers and couplings, Talbot, 3023.
Joining, for straps, ropes, chains, &c., Clayton (*Owen*), 3050.
Flat, for making and fastening driving bands, Gandy, 3188.
Compound tool for making chain, Harrison, 3083.
And shackles for railway couplings, Stableford, 3643.
Chain links for carrying gill bars, Kennedy, 4016.
For fibre hackling chains, Whitehead, 4017.
For connecting carriage axles, &c., Russell, 4177.

**Linoleum.** *See* "Floor-cloth."

**Linseed oils.** *See* "Oils (vegetable)."

**Lint.** *See* "Surgery."

**Liquid-coolers.** *See* "Refrigerating."

**Liquid-meters.** *See* "Meters."

**Lithography.** *See* "Printing paper."

Litholycites. *See* "Surgery."

Lithomarge:
Grinding and utilising, Willans, 1612.

Loading cargo. *See* "Ships' cargoes."

Loading carts and waggons. *See* "Carriages."

Loading stages. *See* "Platforms."

Loam mills. *See* "Grinding miscellaneous."

Lobster and shell fish crackers:
Combined lever instrument, Weston, 3498.

Lockers or bins. *See* "Bins."

Lockets. *See* "Jewellery."

Locking gates on railways. *See* "Railways."

Locking points and switches. *See* "Railways."

Locking signal levers. *See* "Signals."

Locks; canal locks. *See* "Canals."

Locks; latches; keys; lock furniture:
Substitute for ordinary padlocks, Harrington, 44.
Locking railway carriages, Hartmann & Hartmann, 229.
Fire and burglar proof safe, Goater, 552.
Bank safe combination, Worrell, 642.
Keyless combination locks; applying seals to, Clarke, 818.
Attaching knobs or handles to spindles of, Harrington, 853.
Making, of channelled iron bars, Hunt (*Sibut*), 867.
Key rings, Bennett, 945.
Locking gates, &c. on railways, Rapier, 1064.
Securing handles to spindles of, Whitworth, 1095.
Self-acting lock and latch furniture, Whitworth, 1095.
Self-locking door fastener, Heginbothom, 1194.
Self-acting bolts and catches, Turner, 1320.
Latch, available as a bolt or lock, Wheeler, 1377.
Self-acting catch for wagon doors, Taylor & Taylor, 1407.
Combination tumbler, Rutter, 1495.
Locking and unlocking railway carriages, Sanders, 1522.
Attaching spindles to door handles, Cox, 1702.
Secret or invisible, and means of opening same, Faddy, 1974.
Attaching knobs or handles to spindles, Harrington, 2025.
Silent action for door locks and latches, Titley, 2174.
Fixing knobs to spindles of, Bailey, 2195.
Attaching door knobs to spindles, Edwards & Wilkins, 2222.
Lock-actions and furniture, Tucker, 2558.
Combined railway key, turn screw, knife, pen, &c., Wigg, 2578.
Chain locks for doors, shutters, &c., Ward & Ellison, 3162.
Securing handles or knobs to spindles, Ayton, 3168.
Securing handles to spindles of, Harland, 3303.
Securing knobs to cupboard spindles, Harland, 3303.
Attaching knobs to spindles, Brewer (*Carpenter*), 3357.
Bolts, locks and keys of "nickelised" iron, Monckton, 3509.
Automatic safety door fastener, Scourfield, 3563.
Automatically locking, &c. carriage doors, Matthews, 3564.
Safe locks to resist the action of acids, Talbot, 3647.
For railway and other carriage doors, Jones, 3657.
Controlling the position of bolts, Clark (*Lartigue*), 3771.
Self-acting fastener for carriage doors, Davenport, 4211.
Locking and unlocking railway carriage doors, Hart, 4345.
For doors of safes, strong rooms, &c., Chubb & others, 4393.

Logs for ships. *See* "Ships' logs."

Long collars. *See* "Bearings."

Looking-glasses:
Embossing frames of, Clark (*Gschwind & Beberdick*), 421.
Providing desk surfaces with mirrors, Camp (*Knight*), 853.
Breaks for holding, at any desired angle, Roberts, 2182.
Fittings or "movements" for swing, Parry, 2300.
Mounting for hand mirrors, Vaughan (*Jérounec*), 3220.
Backs and handles of mirrors, Chadwick & Condron, 3776.
Compound for protecting gilded frames, Wilkinson, 4026.

Looped or knitted fabrics. *See* "Knitting."

Lopping trees. *See* "Plants and trees."

Louvres and clere-stories. *See* "Windows."

Low water indicators. *See* "Gauges."

Lowering ships' boats. *See* "Ships' boats."

Lowering weights. *See* "Hoists."

Lozenges and troches:
Medicinal and nutritive, Kirby, 1051.
Coating or encasing black currant, Hawker, 4371.

Lubricating. *See* "Oiling."

Lumber or wood. *See* "Wood."

## M.

Machine-guns. *See* "Fire-arms."

Machinery breaks. *See* "Breaks for machinery."

Machinery wheels. *See* "Wheels for machinery."

Madder. *See* "Dyes."

Magazines:
For gunpowder and inflammable liquids, Newton (*Gossi*), 3716.
For gunpowder and other explosives, Macklin & Moore, 3733.
For gunpowder, inflammable liquids, &c., Burney, 3944.
Storing and protecting gunpowder, &c., Baker & Steed, 4414.
Storing gunpowder, inflammable liquids, &c., Haycraft, 4478.

Magazines or cartridge holders. *See* "Cartridges."

Magic lanterns. *See* "Optical instruments."

Magnesia:
Preparing super-hydrate & "milk of," Newton (*Phillips*), 72.
Preparing hydrate or "milk of," Newton (*Phillips*), 1818.
Obtaining and re-using carbonate of, Scott, 2459.
Obtaining sulphate of, Scott, 2568.
Re-using phosphates of, in removing ammonia, Scott, 3472.
Sulphite of, for preserving fermented liquors, Read, 4312.

Magnetism. *See* "Electricity."

Mail bags. *See* "Bags."

Maize shellers. *See* "Hulling."

Malleable iron or steel. *See* "Smelting."

Malt:
Kiln or drying chamber, Perry, 55.
Kiln, Barlow (*Galland*), 678.
Drying chamber or kiln, Wise (*Sbořil*), 1242.
A "pneumatic system" of malting, Barlow (*Galland*), 1996.
Using malt flour in making bread and biscuits, Pooley, 2357.
Cockle-stove for drying and roasting, Perry, 2559.
Uniting glass to working floors of malt houses, Hartley, 3054.
Drying chamber or kiln, Wise (*Zbořil*), 3298.
Germinating and drying, Wirth (*Stenger & Walther*), 3534.
Kiln or chamber for drying, Perry, 3598.
Roasting, Manbré, 3639.
Treating, to remove the sprout or comb, Cressey, 3731.
Substitute for, in brewing, &c., O'Sullivan & Valentin, 3940.

Malt liquors. *See* "Brewing."

Mammals. *See* "Blowing-engines."

Manganese:
Oxygenating, by ozonising, Monckton, 265.
Reducing ores of, Ireland, 2395.
Decolorising acetate of lime for acetate of, Condy, 4037.

Mangling; mangles:
India-rubber bearings for rollers, Marshall & Crosskill, 11[illegible].
Rotating hydraulic, for finishing woven goods, Gebauer, 321.
Combined with washing and wringing machines, Storer, 1[illegible].
Obtaining pressure on rollers, Bradford, 1273.
Arranging driving parts, Carlaw, 1457.
Driving and reversing gear for power machines, Taylor, 23[illegible].
Obtaining pressure on rollers, Bradford, 3338.
Propelling or driving, Monckton, 3509.

Manifold writing. *See* "Copying."

Manometers:
Arranging, with gas regulators, Hache (*Lévy*), 301.
Arranging, with gas regulators, Hache, 2493.
Heating apparatus, Comte de Beaurepaire de Louvagny, 4[illegible].

Mantel-pieces:
Imitation marble, Deléon, 525.
Ornamenting, Brock, 1562.

Mantles. *See* "Shawls."

Manual power (propelling carriages by). *See* "Propelling carriages."

**Manure; treating sewage:**
Drying sewage deposits, Gibbs, 50.
Coating or lining pipes for conveying, Fottrell, 77.
Pine-wood sawdust and blood mixed, Corkran (*Archbald*), 87.
Offal from tallow and lard rendering tanks, Miller (*Brown*), 98.
Pipes for conveying, Woodward, 128.
Treating sewage water, &c., Schmersahl, 160.
From residues in glue making, Miller, 241.
Ozonising sewage, Monckton, 265.
And ammoniacal liquids, Scott & Spence, 283.
Using spent grains or malt, Garton, 508.
Combining ammoniacal compounds with sewage, Scott, 653.
From residue in extracting tallow from suds, Benjamin, 682.
Purifying foul water or sewage, Goodall, 848.
From blood, Johnson (*Lissagaray*), 885.
Treating refuse animal matters for, Crookes, 1152.
Measuring & discharging water in sewage works, Birch, 1157.
Purifying sewage, Short, 1171.
Residuum of coal, shale, &c. in gas making as, Moule, 1260.
Of waste wool, hair, feathers, &c., Smith (*Melville*), 1314.
Obtaining manure, &c. from sewage, Lake (*Hesse*), 1415.
Collecting, treating and distributing sewage, Towle, 1426.
Treating "Megillones guano" to enrich it, Mockford, 1450.
Straining liquid from sewage, Clark, 1453.
Phosphate of lime, Vaughan (*Huytteus de Terbecq*), 1644.
Utilising, in making artificial fuel, Alsing, 1689.
Treating and preserving blood for, Huch, 1734.
Deodorising sewage, &c., and making manure, Kidd, 1764.
From bones, horn-piths, &c. Hunter, 1811.
Clarifying sewage and impure waters, Goodall, 1826.
Treating phosphates of lime for, Tanner, 1915.
Centrifugal filtering machine, Johnson (*De Loynes*), 1916.
Treating sewage, night-soil, &c. for manure, Hughan, 1959.
Lift pump for sewage works, Tipping, 2078.
Phosphate of lime, Vaughan (*Huytteus de Terbecq*), 2168.
Bag for containing manures, Crossdale, 2187.
Drying blood for making, Myerson, 2273.
Pump for raising and delivering sewage, Bentley, 2315.
Clarifying impure waters, Hallsworth & Bailes, 2408.
Treating sewage and foul liquids for manure, Schmersahl, 2439.
Treating sewage sludge for smelting purposes, Lyttle, 2446.
Recovering carbonate of ammonia from sewage, Scott, 2450.
Treating sewage for making manure, Scott, 2450.
Antiseptic fertiliser, Newton (*Chesebrough*), 2451.
Treating sewage for manure, Spence (*Forgeois & Claye*), 2461.
Making and nitrogenising superphosphates, Giebermann, 2547.
Filtering tanks for sewage, &c., Willett & others, 2567.
Preparing phosphate salts for manure, Scott, 2568.
Peat ashes with other substances for, Monckton, 2581.
Deodorising substances for, Monckton, 2581.
Preparing peat charcoal for filtering, Monckton, 2581.
Treating and collecting excreta for manure, Manning, 2676.
Using heat from coke ovens for drying sewage, Bennett, 2710.
Treating sewage, &c. for gas-making, Bray, 3108.
Treating excrement and urine for, Standen, 3122.
Deodorising sewage, &c. and making manure, Kidd, 3199.
Pulverising guano and mixing manures, Crowl, 3211.
Purifying sewage and using deposit as manure, McIntyre, 3225.
Chemically treating and filtering slops and sewage, Bond, 3326.
Treating human excreta and urine for, Bonnefin, 3384.
Treating and clarifying sewage, Hallsworth & Bailes, 3459.
Treating ammoniacal liquids to obtain manure, Scott, 3472.
Defecating sewage by ozonising, Monckton, 3509.
Compressing and moulding oil-cake for, Hodge, 3608.
Purifying refuse water, Paget (*Bérenger & Stingl*), 3613.
Recovering matters from impure waters, Mackay, 3751.
Purifying sewage, Mackay, 3751.
Treating and utilising sewage, Vallé, 3784.
Composition for dressing and manuring land, Lott, 3930.
Clarifying impure water or sewage, Goodall, 4158.
Preparing sludge for clarifying sewage, &c., Goodall, 4158.
Blood, fish, bone and nitro-phosphate manures, Wise, 4176.
Cleansing sewage waters, Morrell, 4247.
Treating sewage and night soil for manure, &c., Scott, 4305.
From refuse filtering media of tin works, Pughsley, 4373.
From residuum in making gas, Johnson (*Moreau*), 4387.

**Manure distributors:**
Applying springs to manure boxes on drills, Gregory, 571.
Drilling manure in patches to prevent waste, Savage, 1613.
Liquid manure cart, Pearson, 2126.
Artificial manure drills, Coultas & Coultas, 2141.
Or cart for spreading, Willacy, 2306.
Seed drill applicable for, Dening & Dening, 2325.
Using broad cast sowers as, Rawbone (*Codville*), 2327.
To seeds, plants, &c. by capillary attraction, George, 3517.
Hoppers and revolving delivery barrels, &c. or, Greig, 4284.

**Maps:**
Indicators for terrestrial & celestial planispheres, Tillman, 334.
Raising and lowering, Smith, 452.
For tourists and travellers, Not, 824.
Preparing surfaces for altering, Shanks (*Johnson*), 1517.
Adjusting and fixing cords of, Harrison & Priestland, 1791.
Globes for showing astronomical phases, Mouret, 2099.

**Marble.** *See* "Stone."

**Marine steam-engines.** *See* "Steam-engines."

**Mariners' compasses.** *See* "Compasses."

**Marking and registering.** *See* "Registering."

**Marking or stamping.** *See* "Stamps."

**Marmalade.** *See* "Preserving food."

**Marquees.** *See* "Tents."

**Marquetry (imitation).** *See* "Inlaying."

**Mashing.** *See* "Mixing."

**Matches; fusees; cigar-lights; splints:**
Incombustible asbestos stems for, Hynam, 615.
Of cardboard, stiffened calico, &c., Cribb & Rackham, 770.
Cardboard boxes for, Merlin, 905.
Forming splints into bundles, Pace & Howard, 1362.
Fusees of collodion compounds, Chandor (*Leonard*), 1480.
For toy pistols, Johnson (*Stephens & Stephens*), 1758.
Igniters and receptacles for safety, Lake (*Meyer*), 2402.
Match and vesuvian boxes, Stearns (*Gauchot*), 2819.
Igniting, by electricity, Lake (*Lambrecht & Wippern*), 3351.
Cutting splints for, Mills (*Neilsen*), 3355.
Combining match-boxes with candle-holders, Fleming, 3374.
Sheet metal sliding match boxes, Bennett, 3664.
Fuse or match & igniting mechanism, Chandor (*Leonard*), 3717.
Boxes or cases for, Brough, 3742.
Matches ("allumettes-publicité"), Lake (*Charruy*), 4013.

**Mathematical instruments:**
Points for drawing instruments, Stanley, 412.
Range finder adapted for surveying, Weldon, 1047.
Levels, Gedge (*Granjon & Combeaud*), 1099.
Compass attachment for marking scrolls, &c., Lake (*Kinney & Smart*), 1395.
Miners' dials or circumferentors, Casartelli, 1857.
Theodolite, protractor and plotting scales, Francis, 3616.
Theodolite for "dialing" and levelling, Francis, 3616.
Walking stick tripod stand for theodolites, Francis, 3616.
System of jointed rods for dividing angles, Kempe, 3901.
Combined rule, square, triangle, &c., Campbell (*Smith*), 4155.
Drawing compass, Campbell (*Smith*), 4204.

**Mats:**
Of leather waste or wood, Belier (*Roullier*), 213.
Paper pulp and sponge for table, Lake (*Kendall*), 701.
India-rubber door, with insulated projections, Harris, 3433.
Knitting or weaving lamp, Curtis (*Hosmer*), 3941.
Treating reversible fabrics for, Wilkinson, 4026.

**Mattresses and beds.** *See* "Upholstery."

**Meal and flour.** *See* "Grinding corn."

**Measures:**
Multiple tool, Baille, 603.
Combined system of coinage, weights and, Peak, 648.
Making and applying tape, Whitaker & Holden, 2671.
For marking yarns in sizing machines, Bailey, 3104.
Measuring work done in jacquard looms, Broadbent, 3752.

**Measures for liquids:**
Adjustable ("Polyometer"), Trueman, 643.
Measures of capacity ("a cube"), Peak, 648.
Appliance to prevent spilling, Dove, 725.
Sliding telescopic tubes used as, Lake (*Webb*), 730.
Taps with measuring chambers, George, 949.
With spouts and guards to prevent spilling, Payne, 2828.
In filling bottles, kegs, &c., Clark (*Sherwood*), 3097.

**Measures for solids:**
Charge for loading cartridges, Lake (*Webb*), 730.
Dry seeds, salts, confectionary, &c., Lake (*Webb*), 730.
Graduated implement, Haseltine (*Richards*), 3022.

**Measuring distance of objects, &c.** *See* "Telemeters."

**Measuring distances run by vehicles.** *See* "Registering."

**Measuring heat of fluids:**
Passing through pipes, Gottheil (*Oesten*), 6.

**Measuring voltaic currents.** *See* "Electricity."

**Measuring water in closets.** *See* "Water-closets."

**Meat (preserving).** *See* "Preserving food."

**Mechanical motive-power.** *See* "Motive-power."

**Mechanical stokers.** *See* "Furnaces."

**Mechanism (teaching).** *See* "Teaching."

**Medallions for striking.** *See* "Dies."

**Medical treatment of animals:**

Lining harness, &c. with lead, Tongue (*Curtis & Gilman*), 1299.
Magnetised fabric for, Lyon, 1954.
Composition for smearing sheep, &c., McDougall, 2208.
Purifying and medicating air for, Hunt (*Reynoso*), 3377.

**Medical treatment of man:**

Applying electric light in, Monckton, 265.
Magnets for curative purposes, Monckton, 265.
Medicinal plaster, Smith (*Audouit*), 297.
Ointment base (vaseline), Chesebrough (*Chesebrough*), 1012.
Magnetising trusses, splints, pads, &c., Darlow, 1121.
Rectal diseases, Lake (*Ludlow*), 1399.
Bath and bath apparatus, Wyatt, 1406.
Inhaling and respiratory apparatus, Carrick, 1501.
Disinfectant for wounds, &c., Bond, 1510.
Pocket inhaling apparatus, Lake (*Gardner*), 1512.
Substitute for ice in, Coles, 1846.
Liniment for lumbago, neuralgia, gout, &c., Hungerford, 1876.
Magnetising fabrics for, Lyon, 1954.
Cataplasm or "lichenized wadding," Lake (*Lelièvre*), 2149.
Constructing "Galvanic Lockets," Welton, 2629.
Portable vapour baths, Dufrené (*Devaux*), 2776.
Evaporating medicated and other waters, Strugnell, 2820.
Flues for carrying away breath in sickness, Roberts, 2843.
Clinical thermometers, Negretti & Zambra, 3114.
Coating lint used for water dressing, Silvester, 3236.
Applying electricity in, Lake (*Lambrecht & Wippern*), 3351.
Purifying and medicating air for, Hunt (*Reynoso*), 3377.
Forceps or instrument for, Imray (*Borin*), 3467.
Galvanic chains, magnetic rings, Monckton, 3509.
Electric trusses for hernia, Monckton, 3509.
Clinical thermometers, Negretti & Zambra, 3585.
Medicated paper for curing piles, &c., Gutensohn, 3650.
Antiseptic paper for closet use, &c., Hart, 3894.
Wash or lotion for eye disorders, Priestland, 3904.
Medico-electricity, Pulvermacher, 3937.
Using cork for waist and chest protectors, Ritchie, 3977.
Portable hot dry air baths, Money, 4182.

**Medicines:**

Super-hydrate and "milk of magnesia," Newton (*Phillips*), 72.
Extracting quinine by hot process, Deiss, 147.
Method of distinguishing pills, Cox, 520.
Vertical mill for grinding drugs, Heydon & Evans, 844.
Vaseline, cerate base, Chesebrough (*Chesebrough*), 1012.
Indicating removal of poison bottles, Clarke, 1034.
Medicated lozenges or troches, Kirby, 1051.
Spheres for packing drugs, Murrow, 1063.
Purifying quinoidine, Blews (*de Vrij*), 1534.
Antiseptic for curing contagious diseases, Lindemann, 1753.
Hydrate or "milk of magnesia," Newton (*Phillips*), 1810.
Cod-liver oil, Lake (*Hava*), 2458.
Producing Epsom salts, Scott, 2568.
Tonic and nutritious cordial, Digby & others (*Livesey*), 2799.
Filling bottles with, Clark (*Sherwood*), 3097.
Pill-making apparatus, Thomson, 3107.
Magnetic pills, Darlow & Fairfax, 4406.

**Megillones guano.** *See* "Manure."

**Melangeing or partially dyeing.** *See* "Dyeing."

**Melting metals.** *See* "Smelting."

**Mercurial air-pumps.** *See* "Air-pumps."

**Mess-tables for ships.** *See* "Ship-building."

**Metal waste (utilising):**

Scraps, old rails, &c., Browne (*Foundries & Forges Co.*), 220.
Utilising tin-plate scrap, Duncan (*Hunt*), 546.
Railway rails, scrap and old steel, &c., Lauth (*Sleath*), 549.
Carbonising iron scrap, Kirkwood & Smith, 609.
Waste of ores or mine refuse or dust, Stone, 714.
Old springs, tires and rails, Clark (*David*), 975.
Tin plate cuttings and scraps, Stuart, 1276.
Old railway rails as building ribs, Abel (*Poutilaff*), 1277.
Tin plate cuttings and scraps, Browne, 1692.
Borings and turnings for horse-shoes, soles, &c., Baker, 1794.
Old railway rails and rail ends, Dyson & Ward, 2183.
Old double headed rails, Griffiths, 2548.
Iron shavings and tinned clippings, De Hemptinne, 2807.
Iron turnings or clips, Abel (*Schierloh*), 3149.
Lead, zinc, copper and tin waste, Newton (*Roswag*), 3451.
Tin plate scraps, &c., Morton, 4285.

**Metallic alloys:**

For thermo-electric magnets, Monckton, 265.
White metal, Delalot, 302.
Iron and other, Browne (*Foundries & Forges Co.*), 422.
For boiler tubes, &c. ("bronze tubes"), Sumner & Watson, 112[illegible].
For friction bearings, Vaughan (*Kunzel*), 1628.
Silver-like alloys and solder for same, Parkes, 2064.
Fine and coarse solder, Murdoch (*Shaw*), 2346.
Alloying molten cast iron with copper, tin, &c., Byron, 2663.
Preparing alloy ingots for the market, Byron, 2663.
White metal, as a substitute for silver, &c., Lemin, 2964.
Alloys of iron, Browne (*Foundries & Forges Co.*), 3394.
Alloys of nickel and copper, Monckton, 3509.
Fusible alloy for fire-alarms, Hughes, 3532.
For nickel anodes and nickelising, Perkins, 3557.
For making gongs, cymbals, tuning forks, &c., Potter, 3962.

**Metallic articles (spinning).** *See* "Spinning."

**Metallic foil for dental purposes.** *See* "Dentistry."

**Metallic salts:**

Chloride carbonate of zinc & chloride of silver, Monckton, 2[illegible].
White lead, Molloy & Fitzgerald, 2[illegible].
Chlorides or chlorates of zinc, magnesium and aluminium, [Brewer (*Joly*), 4[illegible].
Chloride of calcium, Harrison, 1244.
Chlorides of calcium, tin, iron and zinc, Stuart, 1276.
Sulphates of iron and zinc, Stuart, 1276.
Protoxide and sulphide of iron, Lake (*Hesse*), 1415.
Straining white lead, Clark, 1453.
Producing "galenite" from galena, David, 1454.
Using "galenite" in making acetates of lead, David, 1454.
White lead, Baker, 1474.
Obtaining white lead in soap-making, Newton (*Tardan*), 1614.
Combined white lead and lime works, Lake (*Meylert*), 2[illegible].
Constructing and filling white lead corroding rooms, Lake [(*Meylert*), 2[illegible].
Sulphuret of potassium, Henry (*Faucheux*), 2463.
Chlorides of calcium and sodium, Henry (*Faucheux*), 2463.
Sulphate of iron, or iron and tin, De Hemptinne, 2807.
Sulphate of copper, Newton (*Roswag*), 3451.
Chlorides of lead, zinc, copper & tin, Newton (*Roswag*), 3451.
Carbonate of lead & chlorides of zinc & silver, Monckton, 3[illegible].
Sulphate and acetate of copper, Monckton, 3509.
Chamber or stove for drying white lead, Perry, 3827.
Making bichromate of potass, Bonneville (*Chateau*), 4[illegible].

**Metallurgical concrete.** *See* "Concrete."

**Metals (casting).** *See* "Casting."

**Metals (coating).** *See* "Coating."

**Metals (cutting).** *See* "Cutting."

**Metals (forging).** *See* "Forging" and "Rolling."

**Metals (grinding and surfacing).** *See* "Grinding."

**Metals (ornamenting).** *See* "Ornamenting."

**Metals (planishing).** *See* "Forging" and "Rolling."

**Metals (preserving).** *See* "Preserving."

**Metals (puddling).** *See* "Smelting."

**Metals (punching).** *See* "Punching."

**Metals (refining and purifying).** *See* "Smelting."

**Metals (rolling).** *See* "Rolling metals."

**Metals (shingling).** *See* "Forging."

**Metals (smelting).** *See* "Smelting."

**Metals (soldering).** *See* "Soldering."

**Metals (upsetting).** *See* "Upsetting."

**Metals (welding).** *See* "Forging" and "Rolling."

**Meters for gas and fluids:**

Water, Bousfield (*Manley*), 58.
For water-waste preventers, Tylor & Tylor, 277.
Maintaining water level in gas, Lake (*Maldant*), 343.
Liquid, Everett (*Brooks*), 500.
Arranging and actuating valves of, Robinson, 717.
Water & wines, spirits, &c. drawn off from casks, Hughes, 734.
Dry-gas, Haseltine (*Hopper*), 845.
Liquid or aëriform fluid, Alliott, 942.

**Meters for gas and fluids—*cont.***
Measuring "wheels" of wet gas, Warner, 946.
Water, Haseltine (*Read*), 1223.
Water, Lake (*Swan & Connell*), 1243.
Water, Gottheil (*Stumpf*), 1308.
Enamelling iron dials of gas and water, Robinson, 1356.
For gas and other fluids, Gercke (*Neuber*), 1531.
General construction of fluid (anemometer), Lowne, 1567.
Water and other fluid, Fisher, 1602.
Actuating valves of water and other fluid, Frost, 1619.
Measuring "wheels" of wet gas, Warner & Cowan, 1698.
Liquid, Budenberg (*Schäffer & Budenberg*), 1709.
Water and other liquid, Pontifex, 1733.
Liquid, Alexander (*Schmid*), 1799.
Speed indicator, applicable as a liquid, Muirhead, 1909.
Measuring drums of wet gas, Howes, 1944.
Using oil and spirit in wet gas, Aitken, 2587.
Compensating wet gas, Pocock, 3152.
Ether, for use in ice-making, Siddeley & Mackay, 3425.
Cutting out vulcanite screws for liquid, Greenacre, 3672.
Water, Tylor, 3735.
Bellows apparatus for liquid, Mather (*Clausolles*), 3910.
Air, gas and water, Richards, 3928.
Dial or index for; indicating position of, Brooks, 4036.
Measuring and registering water or liquids, Muller, 4228.
Water, for steam-boiler feeders, Verdier (*Macabies*), 4290.

**Mica:**
Employing, for packing, paints, &c., Talling & Seccombe, 3048.

**Microscopes.** *See* "Optical instruments."

**Middlings or sharps.** *See* "Grinding corn."

**Mileage indicators for vehicles.** *See* "Registering."

**Military drill (teaching).** *See* "Teaching."

**Milk; milking cows; milk coolers:**
Making condensed, without sugar, Lippincott (*Conklin*), 237.
Bottoming dairy pails, Lake (*Shepard & Seaman*), 278.
Buttercine and churns, Haseltine (*Smith*), 1219.
Appliance for milking cows, Stanley & James, 1452.
Cooling and drawing, for drinking, Clark (*Ridgway*), 1694.
Preserving cream and, by freezing, Hald (*Frölich*), 1770.
Liquid or solution for preserving cream and, Clark, 1837.
Preserving by various processes, Hunt (*Reynoso*), 2160.
Applying peat charcoal to prevent turning, Monckton, 2581.
Instrument or "Pocket milk tester," Tinker (*Munnich*), 2633.
Cutting or opening tins of condensed, Hardcastle, 2778.
Non-conductor for milk-coolers, Peacock, 2833.
Sectional milk cans, Brodhead, 4392.

**Mill bands.** *See* "Bands and belting."

**Milling machines.** *See* "Fulling."

**Millstones.** *See* "Stone."

**Mincing machines:**
Meat for various purposes, Kaye, 368.
Revolving chopping block, Andrade, 457.

**Mineral oils.** *See* "Oils (mineral)."

**Mineral searchers.** *See* "Boring for coal."

**Mineral waters.** *See* "Aërated liquids."

**Miners' dials.** *See* "Mathematical instruments."

**Miners' safety lamps.** *See* "Lamps."

**Mining and quarrying:**
Waggons for coal pits, Bonneville (*Lambert*), 110.
Portable coal-getting machine, Norris, 132.
Safety apparatus for cages, Hughes (*Libotte*), 157.
Blasting by electricity, Walker, 293.
Electrical machine for, Bousfield (*Smith*), 380.
Setting diamonds or carbon in drills, Terrey, 563.
Protecting eyes and lungs in, Lake (*Beardsley*), 857.
Pumps, Newton (*Silver & Attwood*), 873.
Metal soles for miners' boots, Hughes (*Punderford*), 941.
Unloading coal from pit corves or tubs, Fowler, 943.
Working coal-cutting machinery by air, Pattison, 1189.
Working pumps in sinking shafts, Pattison, 1189.
Coiling arrangement for winding engines, Greenslade, 1241.
Waterproofing charges, Clark (*De Froideville*), 1275.
Exhausting from and forcing air into mines, Johnson, 1360.
Applying intense heat to rock, &c. in, Werdermann, 1438.
Electricity as applied to, Johnson (*De Mersanne*), 1446.
Groove cutters for stone quarries and coal pits, Jordan, 1494.
Actuating coal excavators, &c. by magnetism, &c., Wilde, 1554.
Fuses, matches and squibs for, Daddow, 1558.
Blasting compound, Gottheil (*Rhenish Dynamite Co.*), 1566.
Cutters for holeing and cutting coal, Macintosh, 1714.

**Mining and quarrying—*cont.***
Grinding and sharpening mine tools, Darlington, 1724.
Percussive engine for coal boring, Darlington, 1724.
Refrigerating or cooling air for ventilating, Coles, 1848.
Miners' dials or circumferentors, Casartelli, 1857.
Wheels and axles for trolleys, West & Brookes, 1914.
Brattice canvas, Hawksworth, 1968.
Blasting compound, Mackie & others, 2062.
Lift pumps, Tipping, 2078.
Cutting and hauling coal, shale, &c., Eggleham & Rigg, 2171.
Raising water from mines by air pressure, Murphy, 2267.
Fire detectors and indicators, Lewthwaite, 2313.
Cartridges for blasting, Lloyd (*Holt & others*), 2385.
Picks for coal-getting, Dodds, 2396.
Safety apparatus for cages, Hughes (*Libotte*), 2435.
Rotating ring cutters for, Johnson (*Brown & others*), 2501.
Blasting cartridges and charges, Davey & Watson, 2641.
Rotary rock drills for narrow workings, Tregay, 2728.
Compressed air head and knee caps & pads, Reade & Hurd, 2747.
Percussive rock drills, Hosking & Blakewell, 2760.
Holeing and cutting coal, &c., Huntriss & Swinburn, 2790.
Self-acting lever machine or motive-power for, White, 2892.
Picks and capstan wheel for operating same, Wilde, 3000.
Compressed air coal-cutting machines, Alexander, 3009.
Rotary ventilator or fan, Morison, 3134.
Portable Guibal ventilator or fan, Nelson, 3135.
Coal cutting machines, Higgs, 3237.
Operating rotary rock boring drills for, Walker, 3299.
Working pumping engines, Benson (*Cope & Maxwell*), 3361.
Free-faller system of boring, Wübbel (*Benninghaus*), 3386.
Safety apparatus for pit cages, Taplay, 3500.
Jet apparatus for ventilating, Körting, 3505.
Lighting mines and collieries, Monckton, 3509.
Ozonising air of mines, Monckton, 3509.
Ventilating, Johnson, 3546.
Gun-cotton and blasting cartridges for, Mackie & others, 3612.
Speed regulator for winding drums, Mégy & others, 3656.
Underground railways, Chambers, 3676.
Blasting charges and compounds, Faure & Trench, 3781.
Tools for cutting coal, slate, marble, &c., Munro, 3836.
Pneumatic apparatus for ventilating, Richardson, 3866.
Blasting compound ("Carbonzotine"), Gray (*Cahuc & Soulages*), 3934.
Wedge safety device for cages, Davis, 4042.
Steam pumping engine, Walker & Pflaum, 4129.
Visible and audible signals for collieries, Leech, 4148.
Direct-acting steam pump condensers, Binnie, 4297.
Detachable cylinder for pumps, Lake (*Blake*), 4388.
Ventilating, Hogg, 4468.

**Mirrors.** *See* "Looking-glasses."

**Mitrailleuses.** *See* "Fire-arms."

**Mitts.** *See* "Gloves."

**Mixing, mashing and stirring:**
Mashing in vacuum for brewing, Barlow (*Galland*), 678.
Potters' clay or other plastic material, Boulton, 1119.
Churn for, Haseltine (*Smith*), 1219.
Mixers for evaporating furnaces, Stevenson, 1469.
Concrete for making pipes, Butler (*Stockwell*), 1482.
Agitators for puddling iron, Lowe & Beatson, 1961.
Mixers for water filters, Beck (*Bidtel*), 2735.
Mixing manures and other materials, Crowl, 3211.
Mastic of asphalte, Skinner, 3217.
Jet apparatus for agitating liquids, Körting, 3471.
Perfume in making scented soap, Morgan-Brown (*Fisch*), 3732.
Substances used for floor cloth, &c. by air, Thomson, 4029.
Agitators for use in refining saltpetre, Haycraft, 4046.

**Moistening envelopes.** *See* "Envelopes."

**Moistening stamps.** *See* "Stamps."

**Moles.** *See* "Harbours."

**Money boxes.** *See* "Boxes."

**Monuments:**
Constructing columns for erecting, Johnson (*Hill*), 2398.

**Moorings:**
Chains for harbour buoys, Benson (*Rehbein & others*), 405.
Peg for mooring boats or barges, Turner, 2484.
Adapting steel wire ropes for, Bullivant, 3054.
Slip hook fitted on shore for retaining ships, Rogers, 3301.

**Mordanting cloth.** *See* "Dyeing."

**Mortar:**
Asbestos slip for fettling furnaces, Hyatt, 478.
Mills for grinding, Campbell & Somerville, 538.

**Mortising machines.** *See* "Cutting wood."

Mosaics. *See* "Inlaying."

Motive-power (air). *See* "Air and gas engines."

Motive-power (electro-magnetic). *See* "Electro-magnetic engines."

Motive-power from liquids or fluids under pressure:
Bellows apparatus to obtain, Mather (*Clausolles*), 3910.

Motive power from surplus pressure:
In pumping or forcing of fluids, Oram, 1868.

Motive-power (gas). *See* "Air and gas engines."

Motive-power (hydro-thermic). *See* "Hydro-thermic."

Motive-power (mechanical):
Utilising the weight of materials for obtaining, Hahn, 360.
From coiled springs, Barnett, 490.
For traction, fixed, and portable machines, Gedge (*Bret*), 1579.
Storing up power in stopping centrifugal machines for, Alliott & Fryer, 1773.
Combination of wheels, levers, &c., Wiles (*Thouin*), 2507.
By levers, weights, water, &c., Wirth (*Kleinpell & Dramburg*), 2614.
Spring or weight, for sewing-machines, Pierce & Hutton, 2871.
By means of levers, weights and springs, White, 2892.
Self-acting lever machine, in lieu of steam, White, 2892.
By means of weights, Dufrené (*Lelievre*), 2971.
Spring motors for sewing-machines, &c., Smith (*Proctor*), 3151.
Pedals and hand levers for carriages, Bodel, 3235.
By air, levers and weights, Davidson & Goldstein, 3261.
Spring motor for sewing-machines, Gedge (*Redon & Co.*) 3376.
Machine to increase motive-power, Gedge (*Jacob*), 3407.
By using the weight of a carriage, &c., Morrison, 3523.
From rolling of ships acting on suspended cargo, Cave, 3629.
Spring barrel mechanism, Johnson (*Hitchcock & others*), 4283.
Spring motors, Jenkins, 4303.
Combining helical spings for, Holland & Phillips, 4484.

Motive-power (steam). *See* "Steam-engines."

Motive-power (water). *See* "Water-power engines."

Moulding bricks. *See* "Bricks."

Moulding fuel. *See* "Fuel."

Moulding metals. *See* "Casting metals."

Moulding or blocking felt hats. *See* "Hats."

Moulding plastic materials. *See* "Casting, &c."

Moulding sugar. *See* "Sugar."

Mouldings:
Making and embossing, Clark (*Geschwind & Beberdick*), 421.
Transforming designs to, Fawcett, 2000.
Compounds or "Plastique" for forming, Lake (*Bell*), 2250.
Converting fireproof building materials into, Hyatt, 2550.
Applying japanned metals as, Hughes, 2593.
Compounds or "Plastique" for forming, Lake (*Bell*), 4343.

Mouse and rat traps. *See* "Traps."

Movements of axes (indicating). *See* "Indicating."

Moving weights. *See* "Hoists."

Mowing. *See* "Reaping."

Mows or ricks (building). *See* "Stacking."

Mucilage brushes. *See* "Brushes."

Mud, sand, &c. (removing). *See* "Dredgers."

Muffles. *See* "Furnaces.

Muffs:
Applying cork in making and lining, Ritchie, 3195.
Applying cork in making and lining, Ritchie, 3977.

Mugs. *See* "Jugs."

Mules and twiners. *See* "Spinning."

Multiple tools. *See* "Tools."

Muriatic acid. *See* "Acids."

Mushrooms (preserving). *See* "Preserving food."

Music:
Instrument for indicating chords, &c., Tillman, 334.
Folding stands, Goulding, 405.
Combined table and stand, Camp (*Knight*), 858.
Printing and type for, Morgan-Brown (*Lourdel*), 1445.
Preparing surfaces for printing, Shanks (*Johnson*), 1517.
Leaf turning over apparatus, Mudge, 2341.
Combined stand and binder for, Mudge, 2341.
Transmitting tunes (Telephone), Johnson (*Gray*), 2646.
Holders or files for, Marston, 3395.

Music (teaching). *See* "Teaching."

Musical instruments:
Sounding reed, Hamilton, 119.
Actuating dampers of automatic, Imhof, 182.
Hydraulic motive-power engines for organ blowing, Joy, 368.
Combining reeds with strings, Hamilton & Gouverneur, 443.
Covering and finishing piano-forte keys, &c., Chatwin, 594.
Extending "sound board" of pianofortes, Dunkley, 741.
Organ stops, Johnson (*Winans*), 893.
Self-winding musical box, Wignall, 1442.
Strings without cores for piano-fortes, &c., Hamilton, 1596.
Combined reed and string, Hamilton, 1685.
Upright piano-forte actions, Iliff & Rintoul, 1795.
Cornets and other metal wind, Dupont, 1947.
Blowing organs, &c. by compressed air, Guerra, 1965.
Key and lever action of upright pianos, Coxhead, 2039.
Action and touch of piano-fortes, Whiteman, 2453.
Dampers and hammers of automatic, Imhof, 2622.
Working hammers and dampers of pianos, &c., Imhof, 2622.
Cornets, &c. "new star" arrangement, Tongue (*Besson*), 2753.
Cornet bodies and tuning slides, Tongue (*Besson*), 2753.
Pianoforte "sostenuto attachment," Clark (*Hanchett*), 3062.
Strings and metal parts of, Monckton, 3509.
Portable piano-forte digitorium to emit sounds, Mead, 3587.
Musical boxes, Lake (*Paillard*), 3697.
Pneumatic drum beaters for orchestreons, Frati, 3817.
Compound burners for pyrophones, Clark (*Kastner*), 3872.
Pyrophones in form of gaselers, &c., Clark (*Kastner*), 3872.
Gongs, cymbals, triangles, tuning forks, &c., Potter, 3962.
Organs, harmoniums and pianofortes, Smith, 3965.
Sostenuto action for pianos, Bonneville (*Steinway*), 4015.
Compensators for strings of, Hamilton & others, 4049.
Organs ("string organs"), Hamilton & others, 4149.
Pyrophones and "gas clarionets," Clark (*Kastner*), 4162.

Mustard. *See* "Preserving food."

Muzzles for dogs. *See* "Harness."

## N.

Nails; rivets; spikes; studs; nailing:
Shaving and nicking screw nails, Nugent & Fanning, 191.
Feeding "screeds" or strips in cutting nails, Wormald, 337.
Multiple tool for drawing nails, Baille, 603.
Feed mechanism, &c. in cutting nails, Lake (*Haddock*), 1382.
Dies for forming rivets and spikes, Marsden, 1437.
Polishing and finishing nail heads, Haseltine (*Isbell*), 1632.
Rolling bars for spike blanks, Scattergood & Wilkes, 1827.
Forming spikes already headed, Lake (*Tay*), 2075.
Cast iron malleable horse and tip nails, Mackley, 2231.
Heading nails with brass, copper, &c., Stokes & Stokes, 2668.
Corrugated nails and rolling strips for, Danks & Walker, 2940.
Wire nails for boots, Morgan-Brown (*Richardson*), 2994.
Cutting and finishing the ends of studs, Nelson, 3019.
Feeding and cutting nails from strips, McDowall, 3303.
Feeding strips & forming points of spikes and, Summers, 3530.
Box nailing machine, Lake (*Foster & Culver*), 3662.
Budds or sprigs for boots and shoes, Purdie, 3689.
Sockets for studs, Dowland, 3963.
Cutting nails, budds, sprigs and rivets, Purdie, 4067.
Assorter for nail machines, Imray (*Coyne*), 4116.
Soft cast steel horse-nails, Huggett, 4161.
Cutting nails and tacks, Comery, 4185.

Name plates. *See* "Sign plates."

Naphthaline. *See* "Oils (mineral)."

Narrow fabric looms. *See* "Weaving."

Necklaces. *See* "Jewellery."

Neckties:
Attaching, to collar stud or button hole, Holt, 1851.
With fasteners ("The Sphinx"), Feldtrappe, 2268.
Making paper cravats to imitate silk, Rosenwald, 2276.

**Needles; threading needles:**
Boxes or receptacles for holding, Leonardt & Gilbert, 434.
Making, to facilitate threading, James (*Trabue*), 1294.
Rotary knitting machine, Morgan-Brown (*Bickford*), 1392.
Plural eyed, for sewing-machines, Curtis, 1660.
Pointing wire used in making, Richardson, 1681.
Selvage, for looms weaving two ply fabrics, Heald, 1864.
Grinding, setting and polishing, James, 2429.
Hooks for threading, Fobes (*Wolle*), 2561.
Or weft rod for small-ware looms, Johnson (*Burlock*), 2584.
Curved sewing-machine, Haseltine (*Hahn & Pieper*), 2832.
For chain stitch sewing-machines, Wilson, 2948.
Spiral, for sewing-machines, Garland, 3043.
For button-hole sewing machines, Atwood (*Townsend*), 3183.
Solid spiral, for "overhead" sewing-machines, Laing, 3493.
Of "nickelised" iron, Monckton, 3509.
Wrappers or cases for, Milward, 3727.
Boxes or cases for, Brough, 3742.
Spiral, for sewing-machines, Garland & Gove, 4225.
Making split-eyed sewing, Clark (*Jenkins & Baylis*), 4426.
For surgical and other purposes, Oppenheimer (*Jenkins*), 4430.

**Net or lace machines.** *See* "Lace."

**Nets; netting-machines:**
Making fishing and other, Lake (*Arnold*), 2138.
Making fishing and other, Low & Houston, 3736.

**Newspapers (cutting and opening).** *See* "Papers."

**Nickelising.** *See* "Coating metals."

**Night-lights.** *See* "Candles."

**Night-soil (treating).** *See* "Manure."

**Nippers.** *See* "Pincers."

**Nitrate of potassa.** *See* "Alkalies."

**Nitre and nitre cake.** *See* "Alkalies."

**Nitric acid.** *See* "Acids."

**Nitrogen:**
Converting lower into higher oxides of, Prentice, 1841.

**Non-alcoholic beer.** *See* "Beverages."

**Nose-bags.** *See* "Harness."

**Noxious gases (preventing, &c.):**
In rendering tallow, lard, &c., Miller (*Brown*), 98.
Rotary fan for carrying off, Van de Weerd, 245.
Deodorising and filtering, Synge, 254.
Purifying, in steam-boilers, Baxter, 482.
Stench traps, Wilson, 534.
Size for absorbing, in weaving and dyeing, Blackburn, 540.
In privies and closets, Harvey, 865.
In hot-water apparatus, Weeks & Co., 1754.
In welding or uniting iron, &c., Sutherland, 1784.
Stench traps, Tongue (*Butler*), 1926.
Spring hinge for valves for, Wood, 2123.
Stench traps, Colls, 2330.
Disinfecting, &c. drain and sewer gases, Dixon, 2409.
Burning, in rendering fats, &c., Lake (*Firman*), 2419.
Combining and removing, Johnson (*Silliman*), 2520.
In obtaining ammonia from peat refuse, Henry (*Lair*), 2802.
In extracting oils and fats, Hollands & Ilbery, 2804.
From kilns, drying floors, furnaces, &c., Bowen & Miller, 3324.
Purifying gases or vapors from cement kilns, &c., Gard, 3502.
Consuming, &c. sewer gases, Harding, 3859.
Removing and burning sewer gases, Matthews, 3868.
Ventilating private drains, Gill, 4363.
Condensing, Speir & Mather, 4386.
Stench traps, Davis, 4403.

**Number plates.** *See* "Sign plates."

**Nursery pins.** *See* "Pins."

**Nut crackers:**
Combined lever instrument, Weston, 3498.
Of "nickelised" iron, Monckton, 3509.

**Nutritious cordials.** *See* "Medicines."

**Nutritive drinks.** *See* "Beverages."

**Nuts; washers; junction rings:**
Lock nut & washer for bolts, Stevens (*Reid*), 837.
Locking nuts on machinery, Northcott, 944.
Washers of cloth, &c. for joints, Testud de Beauregard, 1069.
Nuts for curved screw threaded bars, Berthon, 1353.
Lock nuts for railway fish-plates, Neuhaus (*Liebing*), 1875.
Preparing iron for, and making nuts, Clark (*Van Anden*), 1996.

**Nuts; washers; junction rings—*cont.***
Rolling bars for nut blanks, Scattergood & Wilkes, 2346.
Tapping nuts, and oiling dies for same, Johnson (*Sellers*), 2459.
India-rubber washers or packing pieces, Ingram, 2762.
Bolt and nut lock, Browne (*Guyer*), 2801.
Socket nut for railway "saddle rails," Seaton, 2829.
Cutting threads in nuts, Conradi (*Sack*), 2979.
Washers and junction rings, Talling & Seccombe, 3048.
Compound tool for making metallic washers, Harrison, 3083.
Cranked pins as a substitute for nuts, Yull, 3102.
Forging nuts, Horsfall & Greenwood, 3141.
Forging screw nuts, Greenwood (*Vog'l*), 3142.
Washers of combined rubber, wire gauze, &c., Ingram, 3437.
Nuts and washers of "nickelised" iron, Monckton, 3509.
Rolling nut blanks for screws, Taylor & others, 3864.
Shaping or planing sides of screw, Weild & Cochrane, 4055.
Locking, on railway rails, Clark (*Jucqueau*), 4120.
Locking nuts of screw couplings, Lake (*Becker*), 4171.
Screw tap for threading, Murdoch (*Listar & Dupuis*), 4271.
Drilling, tapping and facing machine, Hartnell, 4276.

## O.

**Oakum.** *See* "Ropes."

**Oars.** *See* "Propelling ships."

**Offal (extracting fats from).** *See* "Oils (animal)."

**Offal (treating for manure).** *See* "Manure."

**Oil-cake:**
Press, Eskrett, 1101.
Press, Downs, 1270.
Wrappers or envelopes used in making, Searle, 1630.
Press, Eskrett, 2664.
Cutting and paring edges of seed and, Cowley, 3412.
Forming and moulding, Hodge, 3608.
Cutting up and trimming the ends of seed and, Appleby, 3642.
Producing, in extracting oil from seeds, Ayre & others, 4374.

**Oil-cloth.** *See* "Floor-cloth."

**Oiled silk:**
Substitute for, Jeyes, 1812.

**Oiling fibres.** *See* "Fibres (oiling)."

**Oiling or lubricating:**
Non-lubricating bearings, Cohné, 37.
Picker spindles, Peel & Emsley, 47.
Bearings and axles, Avery, 144.
Bearings, Heaton, 189.
Spinning machine spindles, Butterworth, 228.
Bearings, &c. of electro-magnetic engines, Monckton, 265.
Compositions for, Monckton, 265.
Axles, Collingridge (*Folliet & Gally*), 374.
Spinning machine spindles, Leigh, 398.
Sulphate apparatus bearings, Hargreaves & Robinson, 448.
Spindle bolsters and steps, Newton (*Wilson & Folk*), 458.
Mixing asbestos slip with oil for, Hyatt, 478.
Coal crusher shaft steps, Smith & others, 569.
Knives of cork cutting machines, Thornton, 577.
Picker spindles, Peel & Emsley, 632.
Axles, bearings & spindles, Bonneville (*Broux & Broux*), 644.
Picker spindles, Keighley, 695.
Spinning machine spindles, Ramsden, 718.
Journals of railway cars, Hughes (*Smith*), 750.
Journal-boxes, Bonneville (*Devlan*), 767.
Tallow or oil cups for, Bayley & Bayley, 897.
Pump valves, Martin, 936.
Crank pin bearings, Northcott, 944.
Picker spindles, Buckley, 1033.
Friction meter for testing lubricants, Napier, 1040.
Moulds, in making bricks, &c., Mayer, 1062.
Spindle collars, axles, guides, &c., Bonneville (*Broux*), 1230.
Mortising grease boxes, Bonneville (*Baville*), 1231.
Bearings, Greenslade, 1241.
Parts of drawing and twisting frames, Chapin, 1292.
Safety valve levers, Jackson, 1310.
Oil cups of spindles, Midgley (*Cockcroft & Ackroyd*), 1364.
Engine-valve seats and cylinders, Lake (*Fassett & Hill*), 1389.
Steam-engine cylinders and valves, Jones, 1429.
Cams of copping rails, Brooks & others, 1502.
Sewing-machines, Bishop (*Bishop & Hall*), 1527.
Cylinders of pneumatic breaks, Westinghouse, 1540.
Making and cutting out valve oil cans, Radcliffe, 1553.
Triple-acting atmospheric hammers, Clark (*Chenot*), 1676.
Bearings of centrifugal machines, Hepworth & Paulding, 1798.
Slides of steam-engines & machinery, Oclee & Woodcock, 1806.
Spindle bolsters and steps, Booth (*Draper & Draper*), 1835.

Oiling or lubricating—*cont.*

Sulphate exhauster bearings, Hargreaves & Robinson, 2018.
Pistons of "Asolena engines," Soul (*Hartog & Co.*), 2037.
Lubricator for using tallow, &c., Rumsey & Davies, 2058.
Spring hinge for grease boxes, Wood, 2123.
Lubricating compounds, French, 2249.
Slide valves and pistons of locomotive engines, Ward, 2297.
Mill shafting, Barber (*Crane*), 2342.
Hub, for loose pulleys and wheels, Barber (*Crane*), 2343.
Spinning machine flyers and spindles, Combe, 2348.
Moulding cakes of and applying hot-neck grease, Key, 2350.
Dies in cutting screws, &c., Johnson (*Sellers*), 2459.
Flyers of spinning frames, Clark (*Bouroart*), 2479.
Spinning machine spindles, Haseltine (*Rabbeth*), 2497.
Railway carriage axles, Clark (*Miltimore & others*), 2498.
Pistons of engines by spent steam, Abel (*Roberts*), 2516.
Obtaining lubricating oils from petroleum, Tweddle, 2642.
Pumps used in producing cold, Dufrené (*Tellier*), 2770.
Steam-engine cylinders and pistons, Lumb & Bottomley, 2781.
Lubricating hammer and stamper cylinders, Browett, 2887.
Lubricating wheel and other skates, Wilkins, 2942.
Machines for threading screws, &c., Conradi (*Sack*), 2979.
Bogie turning frames of steam tram-cars, Apsey, 3012.
Cylinders of gas-engines, Waller, 3017.
Preparing vegetable oils for, Kaposi, (*Klosak*), 3160.
Constructing oil cans, Burtinshaw, 3202.
Axes of gyroscopic wheels or discs, Bessemer, 3274.
Lubricators for revolving shafts, &c., Kaposi (*Klosak*), 3341.
Slides of steam-engines and machinery, Woodcock, 3423.
Oil-saving in crushing & other machinery, &c., Patterson, 3485.
Car axle-boxes, journals and bearings, Gedge (*Pierson*), 3530.
Plungers of brick pressing machines, Kennedy, 3578.
Oil for, from spent tan, Murdoch (*Honnaij*), 3583.
Axles of common road carriages, Pickin, 3592.
Plungers of brick making machines, Thairlwall, 3624.
Railway carriage axle-boxes, Clark (*Hussey*), 3678.
Lubricating the knives of tobacco cutters, De Souza, 3700.
Centrifugal water pumps, Paget (*Nagel & Kaemp*), 3719.
Slide valves of steam-engines, Johnson (*Forquenot*), 3779.
Spindles of spinning frames, Mayor (*Chatterton*), 3854.
Collars, spindles, footsteps, bobbin wheels, &c., Revell, 3862.
Roller bearings of revolving shutters, Todd & Wright, 3968.
Lubricator for shafting, Jacobsohn, 3975.
Lubricating packing for stuffing-boxes, Péne, 4047.
Spindles of spinning frames, bearings, &c., Lake (*Shaw*), 4088.
Bearings of forge fan shafts, Rollins (*Kellogg*), 4136.
Wheels of roller skates, Plimpton, 4142.
Axles of pulley-blocks, Stevenson, 4268.
Footsteps of spindles, Stott and others, 4279.
Obtaining oils from leather cuttings for, Murphy, 4355.
Journals of railway carriage axles, Burnup (*Barber*), 4398.
Equilibrium slide valves, Willis & Blick, 4420.

Oil-paintings (imitating). *See* "Pictures."

Oil-pumps. *See* "Pumps."

Oils (animal):

Rendering, purifying and bleaching, Miller (*Brown*), 98.
Bleaching, by ozonising, Monckton, 265.
From liquors in cleansing cotton waste, Ford, 269.
From wool washing suds, &c., Benjamin, 682.
From refuse animal matters, Crookes, 1152.
From waste wool, hair, feathers, &c., Smith (*Melville*), 1314.
Straining fatty matters, Clark, 1453.
Obtaining, from waste cuttings of hides, &c., Bentley, 1478.
Extracting fats from cotton waste, &c., Newton (*Ralph*), 1951.
Extracting, from wool, cotton waste, hair, &c., Bentley, 2362.
Rendering fats and animal matter, Lake (*Firman*), 2419.
Treating cod-liver oil, Lake (*Hava*), 2458.
Boiling down animal matters, Johnson (*Silliman*), 2520.
Refining tanks & machine for fat and, Hollands & Ilbery, 2804.
Making and treating stearine, Morgan-Brown (*Bastie*), 3021.
Extracting, from cotton waste, &c., Scaife, 3602.
From liquors in cleansing cotton waste, Ford, 4150.
Obtaining fat in making bone manure, Wise, 4176.
Extracting, from cotton waste, Kirton, 4299.
Extracting fat from raw wool, Braun, 4348.
Obtaining oils and fats from leather cuttings, Murphy, 4355.
Purifying and bleaching, Speir & Mather, 4386.
Extracting, from refuse and other substances, Bentley, 4452.

Oils (mineral):

Ozonising hydro-carbon, Monckton, 265.
Solidifying paraffin, Harrison, 383.
From blast furnace or cupola gases, Aitken, 576.
From ironstone and bituminous substances, McBeath, 601.
Retorts and distilling apparatus, McBeath, 601.
From tar, Willoughby & others, 839.
Vaseline from petroleum, Chesebrough (*Chesebrough*), 1012.
Refining and filtering, Chesebrough (*Chesebrough*), 1012.
Separating paraffin from solutions, Harrison, 1244.
Refining hydro-carbons to obtain "Eupion," Muir, 1289.
Protective coating for paraffin, Newton (*Babbitt*), 1601.
Purifying carbon oils, Steedman, 1663
Distilling shale oil, Bell, 1824.

Oils (mineral)—*cont.*

Purifying and refining shale and other crude, Beilby, 1967.
Purifying and decolorising paraffin, Miller & Miller, 2046.
Obtaining naphthaline and heavy oil, Clark (*Jenty*), 2276.
Filtering and distilling, Monckton, 2581.
Distilling petroleum, Tweddle, 2642.
Obtaining paraffin and lubricating oils, Tweddle, 2642.
Store-houses for petroleum and spirits, Gittins, 2725.
Testing igniting point and quality of, Clark (*Grenier*), 2871.
Purifying liquid hydrocarbons, Malam & Graves, 3240.
Producing volatile liquid hydro-carbons, Coleman, 3577.
Treating waste gases of shale oil works, Coleman, 3577.
Refractory material for retorts, Horne, 3641.
Evaporating and purifying, Perry, 3827.
Heavy hydro-carbon residuum, Lyttle, 4080.
Recovering, used in cleaning cotton waste, Ford, 4150.
Treating, in making "Carbonite," Smith & Paterson, 4194.
Distilling oils from ores of iron, &c., Ireland, 4215.
Protecting, storing, &c. petroleum, Baker & Steed, 4416.
Metallic casks for storing and transporting, Haycraft, 4475.

Oils (vegetable):

Ozonising essential, Monckton, 265.
Treating linseed and similar, Lake (*Cattanach*), 423.
Distilling essential, Piver, 634.
Oil or seed cake press, Eskrett, 1101.
Hydraulic presses for seed crushing, &c., Downs, 1270.
Straining oil seeds, Clark, 1453.
Expressing, Gibson & others, 1516.
Making wrappers or envelopes of oil presses, Searle, 1639.
Distilling essential, Harris (*Walton & others*), 2063.
Extracting oil from hops, Johnson (*Breithaupt*), 2063.
Filtering and distilling, Monckton, 2581.
Oil or seed cake press, Eskrett, 2564.
Preparing machine oils from, Kaposi (*Klosak*), 3160.
Pulping fruits, seeds, &c. to express, Patterson, 3485.
Essential oil from spent tan, Murdoch (*Honnaij*), 3583.
Extracting, from seeds, plants, &c., Scaife, 3602.
Expressing oils from seeds and forming cakes, Hodge, 3668.
Extracting, Edwards (*Freeland*), 3766.
Extracting substances from seeds, Braun, 4348.
Compressing oil seeds to extract, Ayre & others, 4374.
Extracting, from nuts, seeds, &c., Bentley, 4452.

Ointments. *See* "Medical treatment of man."

Oleates of soda, ammonia, &c. *See* "Alkalies."

Oleine and oleic acids:

Treating, to obtain soluble oil, Watterson, 456.
Treating, in making artificial butter, Hipkins, 684.
Treating, in making artificial butter, Hipkins, 684.
Obtaining elaidic acid, &c., Morgan-Brown (*Bastie*), 3021.

Omnibuses. *See* "Carriages."

Openers and cleaners. *See* "Spinning (batting)."

Opening envelopes. *See* "Envelopes."

Opening tin cans. *See* "Cans."

Optical and philosophical instruments:

Animated stereoscope and magic-lantern, Ray (*David*), 100.
Kaleidoscopes, Adams (*Collicatt*), 333.
Lampascopes, Souchard, 773.
Kaleidoscopes, Thomas, 854.
Microscopic telescope, Cuffley (West), 906.
Lenses for, Wirth (*Steinheil & Steinheil*), 1124.
Microscopes & telescopes ("Isophotal Binocular"), Holmes, 1284.
Equatorial telescopes, Berthon, 1353.
Graphoscopes, Rowsell, 1886.
Lamp for use with microscopes, Parkes, 2162.
Telescopic or sliding joints for, Crawford & Russell, 2411.
Spectroscopes, Ladd & Hilger, 3275.
Of "nickelised" iron, Monckton, 3509.
Stereo-graphoscope, Hugon, 4400.

Optical illusions:

Instrument for producing, Ray (*David*), 100.
Mirror apparatus for producing, Lynn (*Tobin*), 2228.
Mirror apparatus for producing, Edwards, 3604.

Orchard houses. *See* "Greenhouses."

Ordnance. *See* "Fire-arms."

Ore stampers. *See* "Grinding."

Ores of metals (treating). *See* "Smelting."

Organs. *See* "Musical instruments."

Ornamenting:

Glass, Sutherland, 31.
Lace and other textile fabrics, Yates, 197.
Metallic tubing, Atkins, 210.

## Ornamenting—*cont.*

Papier-mâché and other japanned wares, Wood, 389.
Paper for hangings, &c., Girvan & Cathro (*Lecerf*), 394.
Ribbons and other fabrics and cords, Hughes, 399.
Table covers, garments and other woven fabrics, Heaven, 446.
Table tops, Bonneville (*Leeb*), 471.
Soil and water pipes, Harrop, 485.
Vitreous, ceramic, glazed and metallic surfaces, Brown, 731.
Book covers and like surfaces, Bell, 787.
Coffin and architectural ornaments, Wirth (*Von Seeger*), 790.
Marble, granite and slate, Hubmann, 825.
Ironmongery, Hunt (*Sibut*), 867.
Glass, metal, china, wood, &c., Lee, 1137.
Warp lace, Dawson, 1305.
Wood, to imitate white and green ivory, Bluemel, 1397.
Stone pictures ("pictoliths") for buildings, &c., Brannon, 1472.
Pottery and other fictile ware, Brock, 1562.
Buttons, nail heads, &c., Haseltine (*Isbell*), 1632.
Coffin furniture, Kendrick, 1665.
Making artificial stone ornaments, Wise (*Preusser*), 1763.
Producing plates for, Placet, 1807.
Wood, papier-mâché, &c. by transfer printing, Fawcett, 2000.
Substance for, articles, Conybeare & Naphegyi, 2106.
Articles by "Plastique" compounds, Lake (*Bell*), 2250.
Buildings, &c. with japanned metal, Hughes, 2593.
Surfaces by the aid of stencil plates, gelatine, &c., Lee, 2623.
Making oil-printing blocks for decorating, Durand, 2656.
Transferring decorative paintings to walls, &c., Magny, 2723.
Buttons, sticks and other metal work, Lustig, 2997.
Protecting ornamentations done on glass, Hartley, 3084.
Iron plates with imitation vitro-enamel, Oliver, 3099.
Surfaces to appear like inlaid work, MacEwan, 3105.
Woven and felted fabrics, Rigby, 3140.
Sheets and plates with coloured and stained glass, Hyatt, 3171.
Rails of metallic furniture, Atkins, 3463.
Ornamenting and bronzing paper, &c., Leeming & others, 3704.
Brush and mirror backs & handles, Chadwick & Condron, 3776.
Surfaces of wood, paper, &c., Jones, 4038.
Garments & fabrics with beads, &c., Johnson (*Salomons*), 4216.
Articles by "Plastique" compounds, Lake (*Bell*), 4343.
And decorating articles and things, Clark (*Ulmann*), 4356.

## Ovens and kilns:

Combining with steam-boilers, Dudgeon, 20.
Combining, with steam-boilers, Perry, 55.
For drying peat, malt, grain, &c., Perry, 55.
Coking coal & carbonaceous matters; saving fuel, Aitken, 57.
For annealing blocks, slabs, pipes or tiles, Woodward, 128.
Heating domestic ovens, Lewis & Wood, 180.
For drying and curing hops, Noakes, 332.
For making compressed fuel, Hahn, 360.
For burning lime and cement, Williams & Scott, 599.
For distilling, &c., coal, ironstone, and lime, McBeath, 601.
For cooking stoves, Freund, 607.
For drying malt in vacuum, Barlow (*Galland*), 678.
Heating, Jensen (*Erichsen & Maardt*), 1072.
For charring peat or coking coal dust, Lyttle, 1096.
For reburning animal charcoal, Denton, 1130.
Malt drying kilns, Wise (*Sbořil*), 1242.
For tempering saws, &c., Morgan-Brown (*Simonds & Ferson*), 1282.
Combining gas retorts with lime, Wanchope & Cowan, 1338.
Heating bakers' ovens by gas, Fearnley, 1423.
Plaster or cement for lining, Horne, 1425.
For burning or baking bricks, tiles, pottery & lime, Bull, 1538.
Fuel-saving furnace for heating, De Pindray, 1719.
Suspending crockery ware in, Clark (*Jackson*), 1760.
For reburning animal charcoal, Harvie & Lockerbie, 2002.
Attachment to lime kilns for collecting the gas evolved, Lake (*Meylert*), 2006.
Utilising waste gases from coke ovens, Black & Leiper, 2013.
For drying and charring peat, Danchell, 2048.
For tempering saws, &c., Simonds & Ferson, 2099.
Heating air in and for lime kilns, Bainbridge & Pinkney, 2112.
Increasing draught in earthenware kilns, Holland, 2470.
For drying and seasoning timber, McNeile, 2508.
Coke ovens, Johnson (*Gobiet*), 2512.
For roasting malt, coffee, chicory and cocoa, Perry, 2559.
Peat charcoal kilns, Monckton, 2581.
Using waste heat from coke, for drying sewage, Bennett, 2710.
Collecting carbonic acid from limestone, Hanssen, 2749.
Using endless wire ropes in travelling ovens, Parker, 2771.
Glass tempering, Royer de la Bastie, 2783.
Non-conductor or coating for, Peacock, 2833.
For cooking stoves, Freund, 2849.
Hollow fire-bars and flues for heating air for, Deguine, 2963.
For annealing, blueing and drying wire, Littlewood, 3192.
Malt drying kilns, Wise (*Zbořil*), 3203.
Destroying gases from cement kilns, Bowen & Miller, 3324.
For calcining, worked by gaseous fuel, Siemens & Stein, 3457.
Heating ovens used for heating furnace blast, Barclay, 3488.
Purifying gases or vapours from cement kilns, &c., Gard, 3502.
Kiln for drying peat, malt, grain, hops, grains, &c., Perry, 3598.
For baking bread, De Souza, 3702.
Consuming smoke in brick kilns, Jowett & Hunter, 3739.
Retort oven furnaces for metals, Smyth & Simpson, 3840.

## Ovens and kilns—*cont.*

Ovens of blast vacuum furnaces, Smyth & Simpson, 3881.
Brick, lime and pottery ware fuel-saving kilns, Williams, 3956.
Kiln for use in making iron and fuel, Lyttle, 4030.
Brick, tile and like, Wedekind & others, 4138.
Tempering & forming oven, Jensen (*Simonds & Ferson*), 4332.
For carbonizing peat, Davies & others, 4338.

## Overcoats. *See* "Wearing-apparel."

## Overhead railways. *See* "Railways."

## Oxidation, corrosion and incrustation (preventing):

In steam-boilers, Knab, 53.
In steam-boilers, Gedge (*Renard*), 130.
Protective composition for, Heywood, 216.
Anti-fouling and protective composition for, Blair, 235.
Compositions for, Monckton, 265.
In steam-boilers, Baxter, 482.
Mastic to prevent, Craps & Derihon (*Reintjens*), 529.
Anti-fouling compound for, Naugle, 557.
Preserving iron from, Muratori, 931.
Cement to prevent, Tugwood, 983.
In steam-boilers, Smith, 1002.
In steam-boilers, Johnson (*Sommer*), 1089.
Anti-fouling composition or paint for, Jones & Howatson, 1173.
Preserving metals from, by "galenite," David, 1454.
Composition for preserving metals, Ara & Del-Bubba, 1596.
Composition for coating or covering metals, Stead, 1598.
Corrosion of telegraph cables, Zanni, 1855.
Metal of ships and other floating structures, Brannon, 2028.
Corrosion of inner surfaces of iron ships, Thomson, 2044.
Of iron telegraph poles, Muirhead, 2074.
Anti-fouling or "Prophylactic" compounds, Burrell, 2243.
Crown plates of steam-boilers, Waugh, 2256.
In steam-boilers, Lloyd, 2233.
Rendering steel & iron ware passive, for, Briggs & Abell, 2319.
Composition for boilers and economisers, Robinson, 2438.
By depositing metals upon metals, Unwin & others, 2454.
In steam-boilers, Wise (*Le Tellier*), 2496.
Composition for steam-boilers, Day & Osgerby, 2519.
Cement or composition for, Clark (*Leydet*), 2555.
In boilers for heating, drying, &c. by means of steam, Roe, 2702.
In steam-boilers, Beck (*Bidtel*), 2735.
In steam-boilers, Betts, 2798.
In steam-boilers, Russ, 2846.
Compound anti-fouling material for, Thomson & Watson, 2913.
On handles, &c. of coal boxes and other cases, Underwood, 2953.
Corrosion of submarine cables, Highton, 3006.
Of articles to be gold coated, &c., Thompson, 3033.
Coating cables to prevent rust, Bullivant, 3054.
On handles, &c. of coal boxes & other cases, Underwood, 3136.
Of screw propeller blades, Howden, 3246.
In steam-boilers, Unwin, 3403.
Corrosion in gun barrels, Monckton, 3509.
Of tank furnace bridges, used in melting glass, McAdam, 3949.
Of rollers, &c. of revolving shutters, Todd & Wright, 3968.
In steam-boilers, Nimmo, 4018.
Of tank glass furnace bridges, McAdam, 4028.
Corrosion of ships' bottoms, &c., Younghusband & others, 4079.
In steam-boilers, Deluy, 4108.
Of steam-boiler tubes, Walker (*Paukach*), 4254.
Corrosion of marine and other steam-boilers, Lang, 4378.
By covering steam-boilers, Hopkinson & Hopkinson, 4405.
Of stoves, ranges, &c., Clark (*Decoudun*), 4477.
Enamelling pipes for, Haseltine (*American Enamel Co.*), 4486.

## Oxides:

Of zinc, condensing and collecting, Munts & Sharp, 667.
Of zinc and iron, Stuart, 1276.
Red lead, Baker, 1474.
Revivifying black oxide of manganese, Knowles, 1550.
Of lead and manganese; zinc white, Newton (*Roswag*), 3451.
Revivifying oxide of iron in gas-making, Körting, 3469.
Treating spent oxide of iron, Valentin, 3908.

## Oxygen:

Producing and applying in rooms, &c., Wilson, 1424.
Making and condensing, Beck (*Edgerton*), 3366.

## Oyster cans. *See* "Cans."

## Oyster openers. *See* "Knives."

## Oysters:

Hives or apparatus for breeding and cultivating, Michel, 4103.

## Ozone; ozonising:

Acids, oils, fluids, seeds, alcohol, wine, &c., Monckton, 268.
Producing, from compressed oxygen, Hunt (*Reynoso*), 2181.
Air of sick rooms, hospitals, &c., Ball, 2583.
Air of mines and sewage, Monckton, 3509.

# P.


## Packing :

Rotary steam-engines, Bousfield (*Manley*), 58.
Protecting india-rubber, from chemical action, Quin, 63.
Steam-engine and pump piston rods, Scaife, 176.
Vacuum chamber in force pumps, Hooker, 203.
Valve-seats of steam-engines, Hooker, 203.
Air carburetters, Vaughan (*Dubois*), 246.
Fibrous asbestos for, Hyatt, 478.
Steam and other cocks, Mallinson, 752.
Journal-boxes, Bonneville (*Devlan*), 767.
Metallic, for steam pistons, Wigzell & others, 794.
Hose couplings, Newton (*Ashworth*), 904.
Rings, for pistons and valves, Moy, 977.
Stuffing-boxes and pipe joints, Testud de Beauregard, 1069.
Plug taps or cocks, Haigh & Barrett, 1116.
Asbestos paper for, Cleghorn & Paterson, 1145.
Steam-engine and pump pistons, Raines, 1713.
Parts of rotary steam-engines, Newton (*Gallahue*), 1796.
Steam-engine & pump stuffing-boxes & joints, Kirkman, 1896.
For steam-boilers, engines, &c., Hammond & Morgan, 2150.
India-rubber washers or packing pieces for, Ingram, 2762.
Segmental expanding ring for pistons, Whaley, 2856.
Leaky tubes in boilers, condensers, &c., Ley & Shearer, 2911.
Metallic, for pistons, valves, &c., Johnson & Andrew, 2978.
For piston and valve rods, Hunt (*Richards & others*), 2987.
Engine journals and shafts, Waller, 3017.
Employing "mica," &c. in making, Talling & Seccombe, 3048.
Pistons of bellows or blast-engines, Gedge (*Soriou*), 3077.
Pistons of steam pumps, Benson (*Cope & Maxwell*), 3361.
Of combined india-rubber, wire gauze, &c., Ingram, 3437.
Axles, to prevent waste of oil, Gedge (*Pierson*), 3530.
Metallic lubricating, for stuffing-boxes, Péne, 4047.
Tightening, of steam pumps, Ashworth & Ashworth, 4213.
Braiding machine for making "gaskin," James, 4261.
Or rendering tight, valve & tap spindles, Allen, 4382.

## Packing ; packing cases :

Safety screws for, Loewensohn, 162.
Fastening ends of bale bands, Allan & Burns, 543.
Fastenings for cases, Coles, 753.
Chloride of lime, Lake (*Bush*), 799.
Rolling hoop iron with ribs for bales, Bradshaw, 872.
Blacking, &c., Clayton, 1037.
Ligneous tissues for, Murrow, 1063.
Bale hoops and ties, Bradshaw, 1182.
Eggs for storage and conveyance, Harte, 1309.
Or making up sacks or bags for shipment, Laird, 1411.
Caustic alkalies for family use, &c., Newton (*Babbitt*), 1601.
Fastening metallic hoops in baling goods, Marsden, 1615.
Cotton bale ties, Lake (*Parmly & Hughes*), 1700.
Fragile articles and material for, Ivimy (*Long*), 1897.
Safety pin fastener for parcels, Pulvermacher, 2172.
Papering or making up pins for sale, Clark (*Baillet*), 2188.
Ties or bands for baling cotton, hay, &c., Stiff & Sheldon, 2221.
Bale hoops and ties, Bradshaw, 2329.
Combined packing case, bed and portmanteau, Turner, 2484.
Fluted paper, for fragile articles, &c., Ivimy (*Long*), 2600.
Pressing cotton, &c. into bales, McNabb, 3296.
Fastening for uniting bale bands, Benson (*Compton*), 3369.
Waterproof sheets or covers for, Rourke, 3547.
Presses for compressing cotton, jute, &c., Mann (*Watson*), 3725.
Needle wrappers or cases, Milward, 3727.
Boxes for packing and distributing flour for use, Amos, 3846.
Using paper barrels as a fruit package, Carter (*Mason*), 3878.
Double hydraulic baling press, Dack, 3922.
Solution for waterproofing paper for, Wilkinson, 4026.
Fastening cotton and other bale ties, Roddey (*Cooper*), 4041.
Cases for packing butter, &c., Allcard (*Dinant*), 4307.
Bale bands or ties ("quick and easy"), Lake (*Terrell*), 4344.
Presses for compressing cotton, jute, &c., Mann (*Watson*), 4427.

## Paddle-wheels. *See* "Propelling ships."

## Padlocks. *See* "Locks."

## Pads ; porters' knots :

Head, for children and lunatics, Reade & Hurd, 2747.
Shoulder & head, for carrying, &c. weights, Reade & Hurd, 2747.

## Pads (hair). *See* "Hair-dressing."

## Pails. *See* "Buckets."

## Paint brushes. *See* "Brushes."

## Paints ; painting ; colouring ; whitewashing :

Metallic soap for paints, Johnson (*Cambon & Co.*), 18.
On ground glass, Sutherland, 31.
Composition for protecting articles, Heywood, 216.
Producing by electricity, Monckton, 265.
White lead, Molloy & Fitzgerald, 266.
Oil for making or mixing paints, Lake (*Cattanach*), 423.

## Paints ; painting, &c.—*cont.*

Mixing asbestos slip with oil for, Hyatt, 478.
White, Orr, 517.
Anti-fouling compound or, Nangle, 557.
Apparatus for holding artists', Shedlock, 558.
Vertical mill for grinding, Heydon & Evans, 844.
Asbestos cloth for ground work, Cleghorn & Paterson, 1145.
Anti-fouling composition or, Jones & Howatson, 1173.
Colouring paper and pasteboard, Barker, 1368.
Ceilings, walls and surfaces, Thys, 1384.
Straining white lead and colours, Clark, 1453.
Substitute for white and red lead ("Galenite"), David, 1454.
Black, from residue of prussiate of potash, Owen, 1465.
White and red lead, Baker, 1474.
Black, from spent tar, Nangle, 1606.
Grinding, Willans, 1612.
White lead, Newton (*Tardani*), 1614.
White lead, Lake (*Meylert*), 2006.
Preparing lakes ; from aniline products, Casthelaz, 2069.
Or "Prophylactic" composition, Burrell, 2248.
Instrument for testing the quality of, Tinker (*Munzsich*), 2533.
Transferring decorative paintings to walls, &c., Magny, 2723.
Employing "mica" for paint, Talling & Seccombe, 3048.
Background for paintings on glass, Hartley, 3084.
Rope apparatus for lowering house painters, Hill, 3216.
Substitute for oils for, Malam & Graves, 3240.
An oil colour or paint, Wirth (*Gruensweig*), 3323.
Zinc white, Newton (*Roswag*), 3451.
Obtaining white lead and verdigris, Monckton, 3509.
Impalpable black from spent tan, Murdoch (*Homsaig*), 3583.
Chamber or stove for drying pigments, Perry, 3827.
Obtaining Prussian blue from spent oxide, Valentin, 3968.
Black, Knab, 4421.
Metallic casks for containing, Haycraft, 4478.

## Paisley shawls. *See* "Shawls."

## Palmitic acid. *See* "Acids."

## Panels :

Stone pictures ("Pictolitha") for decorating, Brannon, 1472.
Compound material for forming, Brannon, 2027.
Material for and mode of making, Brannon, 2128.
Applying glass to room, Hartley, 3084.
Constructing, Hyatt, 3171.
Composition or substitute for wood in making, Odling, 3574.

## Pans (evaporating). *See* "Heating & evaporating."

## Pans for making lamp black. *See* "Lamp black."

## Pantelegraphs. *See* "Telegraphs."

## Paper (applications of) :

Pasteboard to gas-burner handles, Gedge (*Liotard*), 242.
For insulating purposes, Monckton, 265.
In laying warps, Condit (*Chapin*), 316.
Ornamenting papier-mâché articles, Wood, 389.
Ornamenting for hangings, &c., Girvan & Cathro (*Lecerf*), 394.
Crisping or doubling, Elder, 670.
To floor-coverings, Lake (*Kendall*), 761.
To matches, Cribb & Rackham, 770.
To illuminating gratings, Hyatt, 783.
To coffins and ornaments, Wirth (*Von Seeger*), 799.
To papier-mâché articles, Murrow, 1063.
To making twine or cord, Lake (*Wortendyke*), 1068.
Preparing "papyrographic paper," De Zuccato, 1078.
Night-light wicks of bibulous paper, Payne & Freestone, 1542.
To making lamp wicks, Lefebvre, 1657.
Of paper-pulp to boxes, Mesick (*Wheeler & Jerome*), 1761.
Letter-envelopes to advertising purposes, Tarbutt, 1829.
To packing for fragile articles, Ivimy (*Long*), 1897.
To box-making, Mills (*Heyl*), 1931.
Papier-mâché for ornamenting, Fawcett, 2000.
To box-making, James, 2072.
In making "lichenised wadding," Lake (*Lelièvre*), 2148.
To making perambulators, Pasco & Hawkins, 2249.
Coating, with "Plastique" compounds, Lake (*Bell*), 2259.
To imitation leather, Thomson, 2251.
To making paper cravats, Rosenwald, 2370.
To packing, for fragile articles, Ivimy (*Long*), 2600.
As a transfer medium in decorative painting, Magny, 2723.
To match, vesuvian and other boxes, Stearns (*Gauchot*), 2819.
Ornamenting papier-mâché, MacEwan, 3105.
Preparing "papyrographic paper," De Zuccato, 3150.
To combined shirt fronts and collars, Young, 3153.
To plates and sheets for holding glass, &c., Hyatt, 3171.
Combined envelope and letter-sheet, Baronio, 3387.
To making waterproof sheets for packing, Rourke, 3547.
To disinfecting and medical purposes, Gutensohn, 3654.
To making paper barrels, Carter (*Mason*), 3878.
Antiseptic, for use in water-closets, &c., Hart, 3894.
Waterproofing papier-mâché, Wilkinson, 4026.
To making driving straps or belts, Wigzell & others, 4095.
To fining or filtering ale, beer, &c., Bruce, 4180.
Coating, with "Plastique" compounds, Lake (*Bell*), 4343.
In making artificial leather, Brown, 4459.

**Paper bags.** *See* "Bags."

**Paper (colouring).** *See* "Painting."

**Paper (cutting).** *See* "Cutting paper."

**Paper fasteners:**
Eyelets for, Elsam (*Pultz & Walkley*), 1577.

**Paper (making):**
Pulp strainer, Deny, 16.
Guignet's dressing for paper, Johnson (*Cambon & Co.*), 18.
Recovering soda from lyes, Murdoch (*Lesage*), 97.
Bleaching or ozonising pulp, Monckton, 265.
Asbestos fireproof paper and papier-mâché, Hyatt, 478.
Asbestos pasteboard, Hyatt, 478.
Wheels of revolving cylinders, Carrick & Wardale, 786.
Cupro-ammonialized, Murrow, 1063.
Asbestos packing for machinery, Cleghorn & Paterson, 1145.
Of asbestos, Cleghorn & Paterson, 1145.
Self-cleaning rotary pulp strainer, Elie, 1192.
From vegetable matter of mixed fabrics, Smith (*Melville*), 1314.
Bleaching flax, hemp, jute and manilla for, Bevan, 1473.
Rotary pulp boilers, Brown, 1574.
Mixing ground lithomarge with pulp, Willans, 1612.
Treating straw, jute, &c. for making pulp, Henry (*Nousse*), 1664.
Centrifugal filtering machines, Johnson (*De Loynes*), 1916.
Self-cleaning pulp strainer, Newton (*Andouard*), 2051.
Ventilating exhauster for use in, Ashton, 2054.
Fibre reducing engine for, Haseltine (*Laffin*), 2294.
Treating hop bines and roots for pulp, Barling, 2357.
Pasteboard from peat, Monckton, 2581.
Under-couch roller for "American" machines, Craig, 2602.
Heating drying cylinders and rag boilers by air, Taylor, 2626.
Gum for sizing paper, Newton (*Mitscherlich*), 2939.
Reducing wood, &c. for, Newton (*Mitscherlich*), 2939.
Boiling, grinding, bleaching, &c. stock, Tiffany (*Meech*), 2956.
Propelling machines used in, Monckton, 3509.
Using spent tan for pulp, Murdoch (*Honnaij*), 3583.
Treating silicious vegetable substances for, Cowper, 3705.
Grinding fibres for, Johnson (*Thode Paper-making Co.*), 3708.
Recovering matters from waste waters in, Mackay, 3751.
Reducing wood, straw or rags for pulp, Labrousse, 3819.
From Hibiscus Esculentum, Clark (*Chamas & others*), 3877.
Obtaining gombine for sizing, Clark (*Chamas & others*), 3877.
Reducing and bleaching fibres, Clark (*Chamas & others*), 3877.
Picking rags, &c. for use in, Latour, 3948.
Recovering alkali from waste liquors, Fyfe & Bowers, 4112.
Treating fibres and making pulp, Roeckner, 4117.
Recovering chemicals from lyes, Roeckner, 4117.
From Ketmie or Syrian Mallow, Lake (*Montmagnon*), 4191.
Preparing sword rush and other fibres for, Gray, 4322.
Feeding steam for dessicating pulp, Wise (*Coignet*), 4325.
Substitute for ("Plastique"), Lake (*Bell*), 4343.
Heating baths, Comte de Beaurepaire de Louvagny, 4450.
Writing-paper for ledgers, &c., Brown, 4459.

**Paper (ruling).** *See* "Ruling."

**Paper (waterproofing).** *See* "Waterproofing."

**Paper-hangings:**
Ornamenting, Girvan & Cathro (*Lecerf*), 394.
Giving flock paper the appearance of damasks, Taylor, 1333.
Tinting, &c. flock paper, Johnson (*Bourgeois*), 1420.
Producing surfaces for printing, Shanks (*Johnson*), 1517.
Making oil-printing blocks for decorating, Durand, 2656.
Machine for pasting, Lake (*Bustin*), 2681.
Machine for trimming, Burling (*Todd*), 3818.
Waterproofing, Wilkinson, 4026.

**Papers; newspapers:**
Cutting and opening, Rutulini, 959.

**Papier-mâché.** *See* "Paper."

**Papyrographic process.** *See* "Copying."

**Paraffin.** *See* "Oils (mineral)."

**Parallel motions.** *See* "Propelling or driving."

**Parasols.** *See* "Umbrellas."

**Parchment.** *See* "Leather."

**Parian.** *See* "Stone."

**Passenger registers.** *See* "Registering."

**Passes or tickets.** *See* "Tickets."

**Paste for removing grease and dirt.** *See* "Soap."

**Pasteboard.** *See* "Paper."

**Pastils:**
Fumigating or "disinfecting," Wirth (*Reissig*), 2884.

**Pasting paper-hangings.** *See* "Paper-hangings."

**Path-cutters.** *See* "Garden implements."

**Patterns, scrolls and curved figures:**
Marking or cutting instrument, Lake (*Kinney & Smart*), 1395.
For cutting out dresses, &c., Johnson (*Buttrick & Co.*), 2122.
Device for and uniting sets of, Johnson (*Buttrick & Co.*), 2122.
For economically cutting-out trowser pieces, Symes, 2406.
Embroidery transfer pattern papers, Briggs & others, 4471.

**Paving.** *See* "Road making."

**Pawnbrokers' pledges (checking).** *See* "Registering."

**Paying out cables.** *See* "Telegraphs."

**Peat and turf:**
Combining steam-boiler with carbonizing oven, Dudgeon, 20.
Obtaining, and making into fuel, Dudgeon, 22.
Applied as a filtering medium, Knab, 53.
Kiln or drying chamber, Perry, 55.
Obtaining, and making into fuel, Lake (*Griffin*), 212.
Washing, straining and precipitating, Smith & Hannam, 562.
Combining, with charcoal, clay, &c. for fuel, Corbett, 568.
Cutting or excavating, Clark (*Challeton*), 781.
Treating, for fuel, &c., Barff & Kidd, 971.
Dry fuel and charcoal, Radeke, 1032.
As applied in smelting metals, Lyttle, 1096.
Treating, for fuel or charcoal, Imray (*Hays*), 1104.
Drying, Wise (*Sböril*), 1242.
Combining, with chalk, &c. in making gas, Moule, 1260.
Treating, for fuel and charcoal, Radeke & Smyth, 1355.
Treating, powdered peat for fuel, Williams, 1408.
Disintegrating and straining wet, Clark, 1453.
Treating, for metal founders' blacking, Sellars, 1491.
Using, in preserving wood from decay, Knowles, 1526.
Treating, for fuel, Knowles, 1547.
Mixing peat gas with carbonic oxide gas, Knowles, 1550.
Applied to conglomerates for smelting iron, Lyttle, 1560.
Purifying peat-coke, De Nomaison, 1874.
For use in making fuel, Hughan, 1959.
Pressing, squeezing or moulding, Harcourt, 1961.
Treating, for fuel, &c., Danchell, 2048.
Carburetting, for gas-making, Clark (*Jenty*), 2270.
Using, for deodorising sludge and for fuel, Lyttle, 2446.
Obtaining, and making into fuel, Lake (*Griffin*), 2480.
Using, as a basis for a smelting fuel, Aitchison, 2494.
Drying, for making fuel, Jensen (*Mault*), 2543.
Pulping, drying and converting, for fuel &c., Monckton, 2581.
As applied to asphalted fabrics, Gedge (*Gaudefroy*), 2732.
Using, as a basis for a smelting fuel, &c., Byron (*Lester*), 2751.
As applied in making iron and steel, Lyttle, 2984.
Extracting or cutting, Viehoff (*Balbiani*), 3196.
Drying, Wise (*Zboril*), 3208.
Applying, in forming ore blocks for smelting, Stone, 3356.
Obtaining gas and carbon from, Monckton, 3509.
Kiln or chamber for drying, Perry, 3598.
Producing charcoal from, Ireland, 4215.
Making fuel, charcoal and fire lighters, Davies & others, 4338.
Obtaining, working, carbonising, &c., Davies & others, 4338.
Combining chalk with, for fuel, Stevenson & Hart, 4483.

**Pedestals.** *See* "Columns."

**Peeling potatoes.** *See* "Preserving food."

**Pegs; clothes-pegs:**
Leaf holders applicable as clothes-pegs, Mudge, 2341.
For tent stays, picketing, mooring boats, &c., Turner, 2484.

**Pelliones or saddle cloths.** *See* "Harness."

**Pencils; pencil-cases; crayons:**
Cases for carrying and holding, Quin, 496.
Movements of pencil-cases, Wiley, 1953.
Adjustable and propelling point protector, Morrison, 2316.
Combined pencil, knife, turn screw, railway key, &c., Wigg, 2578.
Applying measuring tapes to, Whitaker & Holden, 2671.
Fitting stamps or seals to cases, Lawrence & Lawrence, 3091.
Detachable screw pencil-cases, Henry (*Croes*), 3470.
Cases of "nickelised" iron, Monckton, 3509.
Ink-pencil for copying purposes, Petit, 4090.
Using cedar pencils in sliding holders, Wolff & Wolff, 4143.
Combined drawing compass & pencil, Campbell (*Smith*), 4204.
Copying, in lieu of ink, Jensen (*Jacobsen & Jacobsen*), 4473.

**Pendants.** *See* "Jewellery."

**Pendulums.** *See* "Clocks."

**Pens; penholders:**
Conical pens, adapted for quick writing, Barlow, 90.
Boxes or receptacles for holding pens, Leonardt & Gilbert, 434.
Glass or vitreous tablets, &c. for renovating pens, Bailey, 1975.
Fountain penholder, Vaughan (*Messier & Patron*), 2117.
Combined pen, knife, turn screw, railway key, &c., Wigg, 2578.
Boxes for holding and sampling steel, Leonardt & Hewitt, 2855.
Adapting solid inks to, Bertram, 3187.
Ink guard and rest for, Rozié, 3212.
Detachable screw penholders, Henry (*Cross*), 3470.
Electro-plating and nickelising pens, Monckton, 3509.
Holders and pens of "nickelised" iron, Monckton, 3509.
Combined drawing compass and pen, Campbell (*Smith*), 4204.

**Pens for cattle on board ship.** *See* "Cattle."

**Pepper mills.** *See* "Grinding corn."

**Perambulators:**
Making wheels & bodies of paper, &c., Pasco & Hawkins, 2240.
Handles for pushing, in either direction, Gadd, 2333.
Lever machine or motive-power for propelling, White, 2892.
Applicable as chairs for swings, Simpson & Fawcett, 3270.
Expanding hub and radial spokes for, Starley, 3939.
With turning bodies, Dale & Vandenweghe, 4098.

**Perforating paper.** *See* "Punching paper."

**Perfumes.** *See* "Scents."

**Perfuming; fumigating:**
Vaporiser for rooms, Abrahams, 227.
Smoker or fumigator for rooms, Kinder & Kinder, 259.
Rooms and fluids, Monckton, 265.
Portable perfume sprayer, Burman & De Frece, 575.
Making match stems for, Cribb & Rackham, 770.
Portable rotatory fumigator, Bennett, 2086.
Fumigating sick rooms, hospitals, &c., Ball, 2583.
Or "disinfecting pastils," Wirth (*Reissig*), 2884.
Spray generator and injector for fumigating, Duncombe, 3139.

**Petroleum.** *See* "Oils (mineral)."

**Petticoats.** *See* "Dresses."

**Phaetons.** *See* "Carriages."

**Philloxera (destroying).** *See* "Insects."

**Philosophical instruments.** *See* "Optical."

**Phosphate of lime.** *See* "Lime."

**Phosphates (alkaline).** *See* "Alkalies."

**Phosphoric acid.** *See* "Acids."

**Phosphorus:**
Obtaining, from bones, hornpiths, phosphates, &c., Hunter, 1811.
Saving fuel by continuous distillation, Hunter, 1811.
Treating phosphate of lime for making, Vaughan (*Huyttens [de Terbecq*), 2168.

**Photography; photographs:**
Portrait lenses, Wirth (*Steinheil & Steinheil*), 1124.
Burnishing photographs, Lake (*Bass*), 1481.
Retouching negatives and positives, Clark (*Lambert*), 1634.
Producing grained or engraved plates by, Placet, 1807.
Applying, to copying deeds, &c. for indexing, Dillon, 1935.
Fixing colours on photographs, Debenham, 2490.
Fixing solution for use in "enamelling," Debenham, 2490.
Camera and dark box for out-door work, Lester, 2617.
Press for making convexed cards, Brookes (*Farjon*), 2667.
Press for glazing or polishing photographs, Cleary, 3541.
Producing, printing and tinting carbon, Clark (*Lambert*), 3633.
Surface or "temporary support" for printing, Sawyer, 3740.
Gelatine and albumen photographic plates, Despaquis, 3947.
Coloring and mounting pictures, Stahlschmidt (*Brauss*), 4011.

**Pianofortes.** *See* "Musical instruments."

**Pickers for looms.** *See* "Weaving (pickers)."

**Picketing horses.** *See* "Tethering."

**Pickling iron plates.** *See* "Coating metals."

**Picks.** *See* "Tools."

**Picric acid.** *See* "Acids."

**Pictoliths or stone pictures.** *See* "Pictures."

**Pictures; picture frames:**
Embossing frames, Clark (*Gschwind & Beberdick*), 421.
Producing and applying "pictoliths" or stone, Brannon, 1472.
Cases for displaying photographs, Holtermann, 1697.
Endless bands for raising and lowering, Townsend, 2217.
Compounds or "Plastique" for frames, Lake (*Bell*), 2250.
Fixing colours on drawings, Debenham, 2490.
Imitating oil paintings, Stahlschmidt (*Brauss*), 4011.
Compound for protecting gilded frames, Wilkinson, 4025.
Compounds or "Plastique" for frames, Lake (*Bell*), 4248.

**Piers:**
Mastic for use in constructing, Rae, 1674.
Pump for excavating sand, &c. for, Kennard, 1815.
Constructing foundation of, in open water, Hunter, 2007.
Compound material for and constructing, Brannon, 2128.
Constructing columns for erecting, Johnson (*Hill*), 2298.
Pontoons for lifting, &c. material in building, Darley, 2782.

**Pile fabrics (weaving).** *See* "Weaving (carpets)."

**Piles:**
Driving, by rock drill apparatus, Warsop & Hill, 1181.
Percussive apparatus for driving, Clark (*Chenot*), 1676.
Constructing junctions of iron, Westwood & Baillie, 2121.
Driving rods for forming columns, Johnson (*Hill*), 2298.
Raising, &c. tups of pile drivers, Lowry, 4131.

**Piling iron.** *See* "Forging" and "Rolling."

**Piling sheets of paper:**
Horizontally, by blasts of air, Nicholls, 41.
Printed and unprinted sheets, by air blast, Nicholls, 2065.

**Pillars.** *See* "Columns."

**Pillow-blocks.** *See* "Bearings."

**Pillows and cushions.** *See* "Upholstery."

**Pills.** *See* "Medicines."

**Pincers, nippers and pliers:**
Multiple tool, Baille, 608.
Increasing gripping power in, Kennedy, 860.
Pincers for setting buttons, Bousfield (*Heaton*), 2194.
For wire covering bottles, Bonneville (*De Mestre*), 3271.
For cutting, &c. bones, skewers, bottle wires, &c., Weston, 3488.

**Pinch bars.** *See* "Tools."

**Pinions.** *See* "Wheels for machinery."

**Pins:**
Shawl and nursery, Perks, 550.
Clasping pin for articles of dress, &c., Armstrong, 606.
Fastening and protecting dress, Bennett, 945.
Converting brooches into hair, Barrett, 955.
Hair, acting as a clip, Eastman, 1345.
Pointing wire used in making, Richardson, 1661.
Pin-lock-safety-fastener, Pulvermacher, 2172.
Papering or making up, for sale, Clark (*Baillet*), 2188.
Heading, with brass, copper, &c., Stokes & Stokes, 2668.
Safety, for braces, suspenders, &c., Snow (*Greely*), 2924.
Of "nickelised" iron, Monckton, 3509.
Boxes or cases for, Brough, 3742.
Employing, for button pole plates, Pulvermacher, 3887.

**Pipe clay for domestic use:**
Treating, preparing and moulding blocks of, Liston, 2382.

**Pipe wrenches or spanners.** *See* "Wrenches."

**Pipes; tubes; tubing:**
Exhaust, for steam-engines, Haseltine (*Jones & Pauly*), 33.
Syphon tubes for boilers, McNeil & Macgeorge, 51.
Protecting india-rubber, from chemical action, Quin, 63.
Artificial stone, for gas, sewage, liquids, &c., Fottrell, 77.
From blast furnace slag or scoria, Woodward, 128.
Rivetting stove and other piping, Mohr, 183.
For filters and cisterns, Huerne, 207.
Making and ornamenting metallic, Atkins, 210.
Cutting screw threads on, Clark (*Allin*), 350.
Tongs and cutters, Benson (*Ferguson*), 426.
Seamless iron and steel, Newton (*Wilbur*), 441.
Asbestos felt for covering steam, Hyatt, 478.
Coiling "small metal" piping on drums or reels, Harrop, 495.
Lead & tin, and tin lined lead piping for soil, &c., Harrop, 495.
Water tubes for boilers, Pendred, 516.
Process and composition for making drain, Delcon, 555.
Mastic for coating, Craps & Derihon (*Reintjens*), 529.
Combined cast iron and steel, Lauth (*Sleath*), 549.
Lever clips for connecting tubes, Thompson, 561.
Multiple tool and pipe tongs, Baille, 608.
For steam generators, Kitchin, 604.
Water tubes for boilers, Rydill, 637.

**Pipes; tubes; tubing—*cont.***

For watering streets and irrigation, Brown, 693.
Gas and water earthenware, Baggeley, 721.
For feed-water heaters, Shaw (*Magoon*), 758.
Forging metal blanks used in making, Ashbury, 898.
Hose couplings and attaching same, Newton (*Ashworth*), 904.
For retorts, Buchanan & Vickess, 923.
Covering, to prevent radiation, Muratori, 931.
Regulating flow of liquids in elastic, Atkinson, 1017.
Bending or turning up strips or skelps for, Evans, 1024.
Of waterproof tissues, Murrow, 1063.
Packing joints of, Testud de Beauregard, 1069.
Casting and annealing glass tubes and elbows, Chedgey, 1075.
Boiler and other ("bronze tubes"), Sumner & Watson, 1120.
Single or compound taper tubes, Hoskins & Harvey, 1140.
Asbestos packing for joints of, Cleghorn & Paterson, 1145.
Making or pressing metal taper tubes, Bourne, 1172.
Attaching ends of copper, &c. to boiler tubes, McCarthy, 1179.
Rolling wrought metal, Hayden, 1212.
Plugging steam-boiler or other, Charlton & Charlton, 1228.
Uniting hose pipes, Lake (*Mundell & Partridge*), 1233.
Material for and mode of making, Brannon, 1246.
For steam-boilers, Appleby & Cornes, 1284.
Connecting together and to articles, Thompson, 1336.
Steam-engine blast and exhaust, Hald (*Hoff & Adamsen*), 1351.
Tube expanders for fixing tubes in boilers, Thomson, 1430.
Connecting for heating water, Mason & Alcock, 1436.
Using "galenite" in making joints, David, 1454.
Lead, tin and composition, Pitchford, 1468.
Moulding concrete, Butler (*Stockwell*), 1482.
Coupling train signal and break, Sanders, 1522.
Coupling break and signal, on trains, Westinghouse, 1540.
Pure tin, for steam-boilers, Barrett & Rawlings, 1725.
Welding or uniting tubes, Sutherland, 1784.
Coating or lining iron, Darwin, 1787.
Casting tubes in rotating moulds, Torr, 1924.
Bending lead and other soft metal, Tongue (*Butler*), 1926.
Drilling and tapping mains under pressure, Schanzer, 1929.
Attaching pipes, &c. to mains under pressure, Schanzer, 1929.
Joining, having inner india-rubber pipes, Hazlehurst, 1957.
Silver-like alloy for making tubes, Parkes, 2064.
Drilling holes in gas mains under pressure, Rafferty, 2103.
For conveying and condensing acid gases, Pilkington, 2111.
Duplex, for hot air stoves, Duport, 2144.
For apparatus used in making sulphates, Robinson, 2145.
Welding tubes, Tasker, 2203.
Closing trap ends, Murdoch (*Shaw*), 2246.
Joining, Murdoch (*Shaw*), 2246.
Shaping and rolling wrought metal boiler & other, Moore, 2427.
Moulding, compressing, &c. drain pipes, Clubley, 2534.
Cement for coating steam and water, Clark (*Leydet*), 2555.
Lining or covering, with japanned metals, Hughes, 2593.
Coating or covering for steam pipes, Broughton, 2654.
Tubes for hot-water apparatus and steam-boilers, Harlow, 2653.
To supersede lead for conveying beer, &c., Bycroft, 2704.
Rolling plates for forming tubes, Robinson, 2718.
Non-conductor or coating for steam pipes, Peacock, 2833.
Moulding concrete pipes, Butler (*Stockwell*), 2872.
Fitting taper tubes in steam-boilers, De Pindray, 2876.
Tube plug or stopper, Ley & Shearer, 2911.
India-rubber sheets for lining, Thomson & Watson, 2913.
Hose couplings; securing covers on ends of, Hill, 2915.
Fixing, in steam clarifiers & pans, Watson & Robertson, 2980.
For "tube racks" or surface condensers, Waller, 3017.
Dolly for expanding tubes in condensers, Waller, 3017.
Cutting screw threads on, Grindrod, 3018.
Hanging tubes for boilers, Hald (*Angström & Wiman*), 3093.
Earthenware pipes and sanitary tubes, Whitehead, 3229.
Tube brush applicable as a tube stopper, Knott, 3249.
Forming cross tubes in vertical boilers, Marriott, 3290.
Lining iron pipes for conveying rain water, Bessemer, 3319.
Casting, from slag run direct from furnace, Paterson, 3325.
Rolling skelps for and lap welded iron and other, Muntz, 3415.
Arranging tubes in making sulphuric acid, Scott, 3417.
Of combined india-rubber, wire gauze, &c., Ingram, 3437.
Rolling and welding iron and steel tubes, Huggins, 3462.
Cutting screw threads on gas and water, Clark (*Frost*), 3620.
Moulding, for water-conduits, &c., Gedge (*Granjon*), 3634.
Refractory material for making, Horne, 3641.
For heating, drying, &c.; arranging same, Scott & Timmis, 3686.
Telescopic locomotive draft, Lake (*Cooke & Foss*), 3712.
Making connections to mains under pressure, Tylor, 3735.
Composition for and moulding, Oppenheimer (*Hirsch*), 3884.
Making and laying stoneware and other, Ramsay, 3889.
Protecting india-rubber from chemical action, Quin, 3902.
Discharging water and air from steam heated, Braidwood, 3919.
Hydraulic machinery for drawing metallic, Clifford, 4020.
For air carburetting apparatus, Schüssler, 4021.
And couplings for extinguishing fire, Thompson, 4024.
Machine for carrying hose for watering, Barton, 4069.
Seamless metal tubing, Newton (*Brooks*), 4244.
Drain and sewer, with two compartments, Morrell, 4247.
Boiler tubes with enlarged ends, Walker (*Paukech*), 4254.
Raising, &c. cutting tool in tube-cutting machines, Lee, 4280.
Enamelling wrought iron, &c., Haseltine (*American Enamel Co.*), 4486.

**Pipes (smoking).** *See* "Tobacco."

**Pistols.** *See* "Fire-arms."

**Pistons:**

Hydronette, hand pump and syringe, Robins, 23.
Steam-engine, Haseltine (*Jones & Pauly*), 35.
Rotary engine, Bousfield (*Manley*), 58.
Packing steam-engine and pump rods, Scaife, 176.
Cushioning steam-engine, Hooker, 205.
Hydraulic motive-power engine, Joy, 366.
Cooling gas-engine, Ford, 486.
Cushioning rock boring engine, Dunn, 503.
Packing "Mather and Platts'," Wigzell & others, 794.
Rotary engine, Haseltine (*McGee & Eisher*), 807.
Cushioning steam pump, Pickering, 932.
Steam-engine, Harper, 951.
Serving as valves in steam and air engines, Willans, 974.
Rings for steam-engine and other, Moy, 977.
Cushioning steam-engine, Benson (*Cope & Maxwell*), 1086.
Packing stuffing-boxes of rods, Cleghorn & Paterson, 1145.
Parallel motion for guiding piston rods, Hayden, 1477.
For beer-engines or pumps, Wilsher, 1543.
Power hammer, Manson, 1603.
Packing steam-engine and pump, Raines, 1713.
Of percussive engines, Darlington, 1724.
Rods and glands for, Angus & Hammersley, 1743.
Of percussive engines, Jordan, 1767.
Packing rotary engines, Newton (*Gallahue*), 1796.
Packing for stuffing-box rods, Kirkman, 1896.
Oiling "Asolena engine," Soul (*Hartog & Co.*), 2037.
Oiling locomotive steam-engine, Ward, 2297.
Water-pressure engine, Perch & Higgs, 2452.
For steam, gas, air or like engines, Abel (*Roberts*), 2516.
Lubricating engine, by spent steam, Abel (*Roberts*), 2516.
For steam, air, gas or vapour engines, Perch & Higgs, 2546.
Pear shaped, for steam, air and water engines, Higginson, 2552.
Horizontal steam and compressed air-engine, Higham, 2657.
For oscillating steam and water engines, Scott (*Haag*), 2758.
For rock-drills, Hosking & Blakewell, 2760.
Of ether vapour condensing pumps, Dufrené (*Tellier*), 2770.
Lubricating steam-engine, Lumb & Bottomley, 2781.
With segmental expanding ring, &c., Whaley, 2856.
Metallic packing for steam, Johnson & Andrew, 2978.
Metallic packing for rods, Hunt (*Richards & others*), 2987.
For rock-drills, Barlow (*Turrettini & Colladon*), 3038.
Employing mica, &c. as a packing, Talling & Seccombe, 3048.
Packing bellows or blast engine, Gedge (*Sorieul*), 3077.
For scroll disc rotary engines and pumps, Cooper, 3082.
Arrangement of, working steam-engine valves, Holt, 3227.
Arranging two revolving, in rotatory engines, Pinhey, 3267.
For rotary steam and air engines, Allix, 3315.
Actuating, of reciprocating engines, Edwards, 3342.
For steam pumping engines, Benson (*Cope & Maxwell*), 3361.
Steam-engine and cushioning same, Browne, 3373.
Arranging, in retort drawing machines, Foulis, 3487.
Crossheads and guide blocks for rods of, Craig & others, 3494.
Cushioning steam-engine, Wilks, 3621.
For direct-acting engines and pumps, Parker & Weston, 3658.
Rotary steam-engine, Haseltine (*Works & Todd*), 3682.
Cushioning reciprocating engine, Brotherhood, 3883.
Governing force of steam pump, Wolstenholme & Thorpe, 4212.
Cushioning steam-engine, Haseltine (*Hodge*), 4464.
Rotating valveless engine, Haseltine (*Wardwell*), 4466.

**Piston-valves.** *See* "Valves (steam)."

**Pitch:**

Addition to Eveleigh process for withdrawing, Beck, 766.
Applying protective coating to, Newton (*Babbitt*), 1601.
Obtaining semi-liquid, Clark (*Jenty*), 2270.

**Pitchers.** *See* "Jugs."

**Pits or mines.** *See* "Mining."

**Plaiting.** *See* "Goffering."

**Plaits or chignons.** *See* "Hair-dressing."

**Planing.** *See* "Cutting."

**Planishing or hammering metals.** *See* "Forging."

**Planishing or rolling metals.** *See* "Rolling."

**Planispheres.** *See* "Maps."

**Plant cases.** *See* "Flower pots."

**Planting or sowing seed.** *See* "Sowing."

**Plants and trees:**

Machine for cutting down trees, Espir (*Suarès & others*), 510.
Growing or training hop plants and fruit trees, Bowden, 1654.
Heat reflectors for hop plants and fruit trees, Bowden, 1654.
Applying magnetism to, Lyon, 1954.

Plants and trees—*cont.*
Obtaining fibres from, Hugon (*Berthet & Labérie*), 2068.
Obtaining "Zapotine" from the Zapote tree, Conybeare & Naphegyi, 2106.
Producing azotic acid for developing, Hunt (*Reynoso*), 2181.
Protective covering for peach and wall fruit, Lascelles, 2324.
Treating hop bines and roots for paper-pulp, Barling, 2357.
Systems of poles and strings for training hops, Gardner, 2358.
Tool for cutting hedges and lopping trees, Walton, 2378.
Antiseptic fertiliser for, Newton (*Chesebrough*), 2451.
Supplying moisture to hop and other, George, 3317.
Treating "Gombo" for paper, Clark (*Chamas & others*), 3877.
Making paper and alcohol from Ketmie, Lake (*Montmagnon*), 4191.
Portable trellis work, Stevenson, 4220.
Preparing sword rush or grass for paper-making, Gray, 4322.

Plaster:
Burning combined foul lime and coke, &c. for, Forbes, 34.
Refractory, for lining blast and other furnaces, Horne, 1425.
Non-conducting, for boilers, flues, ovens, &c., Peacock, 2833.
Kiln for calcining, Siemens & Stein, 3457.
Refractory and hydraulic, Horne, 3641.

Plasters (medicinal). *See* "Medical treatment."

Plasters (surgical). *See* "Surgery."

Plastique:
Compounds for forming and coating articles, Lake (*Bell*), 2250.
Compounds for forming and coating articles, Lake (*Bell*), 4343.

Plates. *See* "Dishes."

Plates for printing. *See* "Printing."

Plates (sign, door, address, &c.). *See* "Sign plates."

Platforms and stages:
Rolling, or bridge for shallow rivers, Muirhead, 2136.
Constructing, Hyatt, 3171.
Portable folding platforms and stages, Cameron, 3204.
Steadying landing and loading stages, Hodgson, 3734.
Steadying gun and passenger platforms afloat, Hodgson, 3734.
Controlling motion of, Morgan-Brown (*Ford & Dick*), 4104.
Platform lights, Newton (*Foley & others*), 4445.

Plating metals. *See* "Coating metals."

Pledges (checking pawnbrokers'). *See* "Registering."

Pliers. *See* "Pincers."

Plotting scales. *See* "Mathematical instruments."

Ploughs. *See* "Tilling and cultivating."

Plugging or stopping tubes. *See* "Pipes."

Plugs (fire). *See* "Watering."

Plumbago:
Hardening and applying, Macintosh, 2945.
Pasty or semi-liquid black-lead, Clark (*Decoudun*), 4477.

Pneumatic breaks. *See* "Breaks for railways."

Pneumatic motive-power. *See* "Air-engines."

Pneumatic railways and tubes. *See* "Railways."

Pneumatic signals. *See* "Signals."

Poachers (detecting). *See* "Trespassers."

Pocket-books. *See* "Books."

Points and switches. *See* "Railways."

Pole axes (substitute for). *See* "Slaughtering."

Poles and posts. *See* "Posts."

Poles for carriages. *See* "Carriages."

Polishing:
Fluted rollers in spinning, Threlfall & others, 30.
Plate by revolving brushes, Egerton, 617.
Needles, James, 2429.
Solvents for polishers, Mackay, 2709.
Metal articles, Kent, 3756.
Veneers or wood, Wright, 4115.
Black-lead paste for stoves, &c., Clark (*Decoudun*), 4477.

Polishing and grinding. *See* "Grinding."

Polishing floors. *See* "Floors."

Polishing grain and seeds. *See* "Hulling."

Polishing yarns and threads. *See* "Finishing."

Pollard and meal. *See* "Grinding corn."

Polyometers. *See* "Measures for liquids."

Pomades. *See* "Hair-dressing."

Pontefract pipes. *See* "Confectionary."

Pontoons:
For floating docks, Clark & Standfield, 111.
For floating docks, Clark & Standfield, 202.
For raising ships out of the water, Scott, 2562.
For raising ships and weights under water, Darley, 2782.
Obtaining steadiness in bridge pontoons, Hodgson, 3734.
Or floating docks, Halpin, 4278.

Porcelain. *See* "Earthenware."

Portable railways. *See* "Railways."

Porter and ale. *See* "Brewing."

Porters' knots. *See* "Pads."

Portfolios. *See* "Books."

Portland cement. *See* "Cement."

Portmanteaus; travelling trunks:
Rivetting the corners, joints or seams of, Mohr, 152.
Constructing, Van Dyk, 199.
Ball casters for trunks, Johnson, 674.
Compounds or "Plastique" for trunks, Lake (*Bell*), 2250.
Combined bedstead, packing case and, Turner, 2484.
Folding leather for, Chesebrough (*Platts & Walden*), 2[illegible].
Using sheet metal in making, Hirschmann (*Philipp*), 3[illegible].
Strengthening, &c. by metallic bands, Townson, 3463.
Waterproofing, by a lining of tin foil, &c., Drury, 3574.
Material for making, Wilkinson, 4026.
Stamping tubular bands in metal of trunks, Evans, 4[illegible].
Compounds or "Plastique" for trunks, Lake (*Bell*), 4343.

Postal sample bags. *See* "Bags."

Posts, poles and masts:
Cement for preserving telegraph, Tugwood, 983.
Telegraph, signal, boundary and mile, Hood, 1306.
Preserving wooden telegraph, Knowles, 1526.
Sockets for, and inserting and withdrawing posts, McCool, 1712.
Constructing iron telegraph, Muirhead, 2074.
Combining, &c. wooden strips for hollow, Plimpton, 2[illegible].
Fitting masts and spars on board ship, Southwood, 3[illegible].
Covers for moveable post sockets, Dowland, 3963.
For metallic fences, Devoe & Walker, 4093.
Sockets for fixing and preserving wooden posts, Hale, 4[illegible].
Couplings for repairing iron masts, Tongue (*Stuart*), 4[illegible].
For telegraphs and protecting insulators, Slade & Slade, 4[illegible].
Repairing masts and telegraph poles, Tongue (*Deeride*), 4[illegible].

Potash. *See* "Alkalies."

Potato disease (preventing):
Composition for, Lott, 3930.

Potatoes (digging). *See* "Digging."

Potatoes (preserving). *See* "Preserving food."

Potatoes (sowing). *See* "Sowing."

Pots; gallipots. *See* "Jars and pots."

Pots for boiling. *See* "Cooking."

Pots for flowers. *See* "Flower pots."

Pottery and china ware. *See* "Earthenware."

Pouches (tobacco). *See* "Tobacco."

Powder (drying). *See* "Drying."

Powders (testing). *See* "Testing."

Precipitating metals. *See* "Smelting."

Preserve jars. *See* "Jars."

Preserves (troughs for game). *See* "Troughs."

**Preserving and preparing food:**
Condensed milk without sugar, Lippincott (*Conklin*), 237.
Mincing machines, Kaye, 368.
Whites and yolks of eggs, Johnson (*Lissagaray*), 455.
Chopping or mincing sausage meat, Andrade, 457.
Meat or animal substances, Tongue (*Damkoehler*), 505.
Cutting or slicing fruit and vegetables, Kent (*Adam*), 638.
Artificial butter, Brewer (*Diderichsen*), 661.
Artificial butter, Hipkins, 664.
Artificial butter, purifying rancid butter, Hipkins, 684.
Tins, cans and bottles for, Johnson (*Teyssonneau*), 760.
Condensing and preserving eggs, Johnson (*Miles*), 761.
Meat and vegetables by ethyl and methyl, Naphegyi, 834.
Sardine boxes, Lebacq, 965.
By drying, sulphurous acid and air, Danet & Feuillant, 1007.
Artificial butter, Clark (*Dordron & others*), 1049.
Washing and peeling potatoes, Topham, 1146.
Masticating ("The Manducator"), Gedge (*Hivonnait*), 1191.
Pressing and drying boiled potatoes for, Morris, 1203.
Buttereine, Haseltine (*Smith*), 1219.
Drying fruits, Wise (*Sôôril*), 1242.
Butter making, Bradford, 1272.
Storing and conveying eggs, Harte, 1309.
Fish, flesh and fowl by aldehyde, Smith, 1394.
Artificial butter, Rennick (*Tappan*), 1396.
Eggs by carbonic anhydride & alkaline silicates, Budde, 1428.
Straining potatoes and fruit, Clark, 1453.
Antiseptic ("Cupralum") for preserving meat, Bond, 1510.
By artificial refrigeration, Mort (*Nicolle & Mort*), 1573.
Preserving the yolk of eggs, Pollak (*Langefeld*), 1687.
Treating blood for food, Huch, 1734.
Preserving fresh meat by boracic acid, Lindemann, 1753.
Milk and cream by refrigeration, Hald (*Frölich*), 1770.
Solution for preserving meat, fish, game, milk, &c., Clark, 1837.
Peeling or skinning potatoes, &c., Mortlock, 1939.
Antiseptic for preserving meat, game, fish, &c., Herzen, 2032.
Preserving fruit and vegetable juices, Fairlie, 2102.
Various preservative processes, Hunt (*Reynoso*), 2160.
By refrigeration, Haseltine (*Bate*), 2352.
Meat and fish by peat-charcoal, &c., Monckton, 2581.
Fluted paper packing for eggs, fruit, &c., Ivimy (*Long*), 2600.
By slow desiccation and cold, Dufrené (*Tellier*), 2770.
Opening tins of preserved meats, &c., Hardcastle, 2778.
Non-conductor for safes, butter-coolers, &c., Peacock, 2833.
By salt & nitre spread over it and then heated, Bolleter, 3055.
Metal boxes for containing sardines, &c., Lebacq, 3194.
Drying fruits, Wise (*Zboril*), 3208.
Refrigerators for, Peacock & Bradley, 3243.
Butter-making, Bradford, 3337.
Opening preserved provision cases, Griffin, 3375.
Salting and pickling pans, Mouckton, 3509.
Preparing, cooking, smoking & preserving fish, Hönck, 3645.
Preserving pilchards, &c. without liquids, Fryer, 3652.
Preserving pilchards, &c. in oil, Fryer, 3653.
Fresh meat, game, &c. by hexmetaborate of soda, Dickson, 3745.
Refrigerator for, Lake (*Bate*), 3790.
Cutting or slicing vegetables, Alexander (*Ménier*), 3814.
Churns for making butter, Johnson (*Goulas & Co.*), 3893.
Safes submerged in water for, Roby, 3920.
Fresh truffles, mushrooms and fruits, Tongue (*Gorges*), 3946.
Fresh meat, game, fish, vegetables, &c., Tongue (*Gorges*), 3946.
Orange peel for marmalade, McDonald & McDonald, 4146.
Mixture of meals and flours (Farina Vitæ), Stone, 4183.
Cases for packing butter, &c., Allcard (*Dinant*), 4307.
Ice boxes or refrigerators for, Haseltine (*Bate*), 4321.
Animal and vegetable substances, Baker & Steed, 4416.
Metallic casks for containing mustard, &c., Haycraft, 4478.

**Preserving brickwork:**
Cement for, Tugwood, 983.

**Preserving corpses.** *See* "Corpses."

**Preserving fermented liquors.** *See* "Brewing."

**Preserving from and preventing must:**
Metallic soap or dressing for, Johnson (*Cambon & Co.*), 18.
Size or dressing for, Blackburn, 540.
Treating yarns and fabrics for, Connor, 612.

**Preserving hides.** *See* "Leather."

**Preserving hops.** *See* "Hops."

**Preserving metals:**
Non-conducting mastic for, Craps & Derihon (*Reintjens*), 529.
Anti-fouling compound for, Nangle, 557.
Composition for, Muratori, 961.
Cement for, Tugwood, 983.
Compound of lead or "galenite" for, David, 1454.
Composition or varnish for, Ara & Del-Bubba, 1595.
Inner surfaces of iron and composite ships, Thomson, 2044.

**Preserving paper.** *See* "Paper."

**Preserving stone.** *See* "Stone."

**Preserving textile materials and fabrics:**
Metallic soap or dressing for, Johnson (*Cambon & Co.*), 18.
Size to render impervious to mildew, Blackburn, 540.
Against mildew by boracic acid solution, Lindemann, 1753.

**Preserving wood.** *See* "Wood."

**Presses:**
Mechanical power for driving, Gedge (*Bret*), 1579.
Utilising surplus power from, Oram, 1868.
Hydro-thermic, Tommasi, 2896.
Monkey, for forming openings or sashes in sheets, Hyatt, 3171.
Reciprocating, for stamping, moulding, &c., Stevens, 4314.

**Presses for burnishing.** *See* "Photography & Cards."

**Presses for copying.** *See* "Copying."

**Presses for embossing.** *See* "Embossing."

**Presses for printing.** *See* "Printing paper."

**Presses for stamping out leather.** *See* "Cutting."

**Presses (hydraulic).** *See* "Hydraulic."

**Pressing & damping woven fabrics.** *See* "Finishing."

**Pressing or compressing miscellaneous articles:**
Bearings of carding rollers, &c., Leigh, 398.
Rings and plates for cannons, Allen, 614.
Single or compound taper tubes, Hoskins & Harvey, 1140.
Forming metal taper tubes, Bourne, 1172.
Screw nut blanks, Clark (*Van Anden*), 1996.
Sheets in forming metallic boxes, James, 2072.
Bending horse-shoe blanks, Horsfall & Greenwood, 2266.
Links for chains, &c., Gray & Taylor (*Selden*), 2772.
Forcing ingots from their moulds, Wilson, 2816.
Hollow soldering tips, Mills (*Sears*), 2988.
Hydraulic presses for, Whitworth, 3064.

**Pressing or compressing miscellaneous substances:**
Powdered clay for earthenware articles, Maw, 264.
Artificial stone, &c., Hahn, 360.
For tiles, &c., Mayer, 1082.
Oil or seed cake press, Eskrett, 1101.
Peat for charcoal, Imray (*Hays*), 1104.
Boiled potatoes for preservation, Morris, 1203.
Press for oil-expressing, Downs, 1270.
Carbonaceous matter and iron ore into blocks, Healey, 1315.
Lard, Clark (*Marshall*), 1323.
Caster bowls, knobs, &c. of clay, Gaskell & Gaskell, 1345.
Deoxidised iron ore into blooms, Hunter, 1838.
Glass in moulding tumblers, basins, &c., Haley, 1927.
Cartridges, mining charges, &c., Davey & Watson, 2641.
Oil or seed cake press, Eskrett, 2664.
Juice from sugar-cane and beet-root, Espeut, 2826.
Tamping concrete pipes in moulds, Butler (*Stockwell*), 2872.
Leather, &c. in folding, Cheesbrough (*Platts & Walden*), 2928.
Rams or stamps for, Bolton, 2935.
Juice from sugar-cane, Hunt (*Lahaye & others*), 3071.
Water from "slip," cements and semi-fluids, Scott, 3076.
Cotton, merchandise, &c. into bales, McNabb, 3296.
Compressing and twisting tobacco, Andrew, 3310.
Oils from seeds, Hodge, 3608.
And moulding various substances, Kingsford, 3728.
For tiles, &c., Whittaker, 3743.
Presses for use in moulding glass, &c., Sowerby, 4065.
Seeds or matters for producing cakes, &c., Ayre & others, 4374.

**Pressing or moulding bricks.** *See* "Bricks."

**Pressing or moulding fuel.** *See* "Fuel."

**Pressure gauges.** *See* "Gauges."

**Pressure of fluids (regulating the).** *See* "Valves."

**Printing colours.** *See* "Dyes."

**Printing earthenware and china:**
Making and heating stoves and hot plates for, Harlow, 541.
Photographic pictures or designs on, Brown, 731.
Blocks for oil-printing or decorating, Durand, 2656.
Type and transferring apparatus for, Holyoake, 3444.

**Printing metals; transfer printing:**
Photographic pictures or designs on, Brown, 731.
Coffin plates, Kendrick, 1665.
Transferring designs to imitate vitro-enamel, Oliver, 3099.
Type and transferring apparatus for, Holyoake, 3444.

**Printing or ornamenting glass.** *See* "Glass."

**Printing or stamping spools or bobbins:**
With numbers, letters and signs, Becker, 9.

**Printing paper:**
Portable printing-press, Bonneville (*Berthier*), 14.
Cutting and piling printed sheets, Nicholls, 41.
Mounting and fastening stereotype plates, Mason, 99.
Ink, Clark (*Rogers*), 208.
Type-setting and distributing machines, Hooker, 477.
Lithographic stones of artificial stone, Deléon, 525.
Rotary web perfecting machines, Wilson, 587.
Lithographic presses, Arnheim (*Stöffler & others*), 597.
Finishing printed sheets, Farmer, 655.
Paper cutting and feed arrangements, Conisbee & Smale, 739.
Press applicable to autographic printing, Lefevre, 927.
Different sizes of sheets, Payne, 996.
Papyrographic process and ink, De Zuccato, 1078.
Newspapers, &c. in "complementary colors" on "colored [grounds," Halbert, 1150.
Frame and type for music, Morgan-Brown (*Lourdel*), 1445.
Producing blocks for, Shanks (*Johnson*), 1517.
Damping paper for printing newspapers, &c., Walker, 1557.
Driving lithographic presses, Gedge (*Bret*), 1579.
Lithographic and letterpress machines, Mann & others, 1640.
Hand apparatus or travelling type, Hoffman, 1786.
Producing plates, blocks or surfaces for, Placet, 1807.
Cylinders, Dawson & Dawson, 1845.
Type composing machine, Millar, 1899.
Abstracts of deeds, &c. for indexing, Dillon, 1935.
Hot-pressing and finishing printed sheets, Gill, 1945.
Cleaning and drying cylinders used in finishing, Gill, 1945.
Printing ink ("Asteatine"), Clark (*Cré*), 1995.
Designs, devices, &c. on papier-mâché, Fawcett, 2000.
General construction of rotary web, Nicholls, 2005.
Sheets of different lengths in rotary web, Nicholls, 2005.
Unreeling, damping and rewinding paper, Nicholls, 2005.
Cutting, piling and folding printed sheets, Nicholls, 2005.
Type-writing machine, Barlow, 2131.
Breaking off, rubbing, kerning and setting up type in casting, [Johnson (*Robcis & Sons*), 2178.
Arrangement and construction of machines, Wilson, 2448.
Damping paper previous to printing, Newton (*Hoe*), 2463.
Type composing machinery, Mackie & Waldenström, 2510.
Cutting or perforating paper in, Salmon & Wood, 2597.
Sheet metal type with wooden backs, Nall & others, 2627.
Type for shade letters, posters, &c., Nall & others, 2627.
Blocks for oil-printing paper-hangings, Durand, 2656.
Measuring and cutting paper; type cylinders, Bond, 2775.
Rollers and tapes, horses or tables and flyers, Bond, 2775.
Inking roller composition, Morgan-Brown (*Osgood*), 2875.
Rotary web perfecting machines, Wilson, 2921.
Cemented lithographic stones, Gedge (*Mayoux*), 3078.
Type composing machinery, Winder, 3137.
Papyrographic process and ink, De Zuccato, 3150.
Automatic fly or taking-off apparatus, Shrewsbury, 3260.
Stamping and inking bonds, &c. in relief, Bodel & others, 3277.
Rotary web ("Northumbrian"), Donnison & Donnison, 3322.
Arranging and forming "boxes" in type cases, Shaw, 3410.
Stereotype and electro-type plates or blocks, Johnston, 3432.
Continuous web machine, Newton (*Hoe*), 3434.
By single types ("Typolithograph"), Alissoff, 3528.
Envelopes, note paper and other articles, Hely, 3707.
Bags, in process of making, Clark (*Lewis & others*), 3713.
Type composing and arranging apparatus, Smith, 3721.
Damping; cutting up and delivering newspapers, Colley, 3826.
Flat surface printing machines, Davis & Parsons, 3887.
Preparing photographic plates and press for, Despaquis, 3947.
Damping rollers used in, Despaquis, 3947.
Starting and stopping mechanism, Crosland, 4023.
Or graining and ornamenting paper, Jones, 4038.
Feeding sheets into machines, Reuter, 4137.
Curving electrotype plates for, Loftin & others, 4160.
Driving lithographic and letter press machines, Ward, 4330.
Taking-off and delivery apparatus, Coleman & Holman, 4377.
Obtaining black for, Knab, 4421.

**Printing telegraphs.** *See* "Telegraphs (electric)."

**Printing wood; transfer printing:**
Designs, devices or ornamental patterns on, Fawcett, 2000.
Furniture, &c. in oil-colours, Durand, 2656.
Or graining and ornamenting wood, Jones, 4038.

**Printing woven and other fabrics and yarns:**
Fabric for covering cylinders, Mewburn (*Chalumet*), 156.
Preserving eggs for use in, Johnson (*Lissagaray*), 455.
Laying colour on blocks for, McKay, 1369.
Producing raised surfaces for, Shanks (*Johnson*), 1517.
Producing spotted or spreckled effects, Smith & Smith, 1756.
Casting printing rollers, Torr, 1924.
By transferring chromolithographs, Clark (*Bozzini*), 2389.
Tape measures by lithography, Whitaker & Holden, 2671.
Grounding and printing oil or floor-cloth, &c., Ireland, 2757.
Stockings and other hosiery goods, Weldon, 2813.
Raised designs by new colours, &c., Engetedorff, 3144.

**Printing woven fabrics, &c.—*cont.***
Turkey red fabrics, Wallach & Jones, 3166.
Regulating steam in driers, Metcalf & Gibbons (*Watts*), 3517.
Ageing or fixing colours, Thom, 4236.
Employing compounds of vanadium in, Sellon & Pinkney, 4432.

**Privies.** *See* "Water-closets."

**Projectiles for ordnance.** *See* "Shot."

**Propelling balloons.** *See* "Aërial-machines."

**Propelling carriages:**
Tramway cars, Todd, 225.
Railway, by magnetic attraction, Monckton, 265.
By power obtained from coiled springs, Barnett, 490.
By manual power, Dix, 582.
Tramway cars by steam, Jensen (*Köhl*), 797.
By compressed air, Scott-Moncrieff, 868.
By elevated railways, Lake (*O'Toole*), 915.
By the weight of the rider, Hughes (*Gombert*), 1350.
By compressed air, Scott-Moncrieff, 1453.
Tramway cars, Todd, 1533.
Mechanical horse for, Gedge (*Bret*), 1579.
Tramway cars and other vehicles, Spill, 1586.
Tram-cars by air, Stevens (*Laubereau*), 2364.
Self-acting lever machine or motive-power for, White, 2392.
Hydro-thermic engine for, Tommasi, 2897.
Applying power to cars and carriages, Lake (*Nobles*), 2938.
Tramway cars by carbonic acid gas, Waller, 3017.
Hydro-thermic motor for tram-cars, Tommasi, 3031.
By power generated in hydraulic presses, Walker, 3075.
Railway, by coupling wheels, Morgan-Brown (*Chamberlain*), [3110.
Road carriages by pedals and hand levers, Bodel, 3235.
Tram-cars and similar vehicles, Lascelles, 3237.
Using resistance of air for propelling trains, Cook, 3271.
Hydro-thermic motor for tram-cars, Tommasi, 3476.
Electro-magnetic engines for, Monckton, 3509.
Tricycles or three wheeled carriages, Morrison, 3523.
Drawing trains up inclines, Stevenson & Reid, 3969.
Combined propeller and break, Prichard & Jackson, 4165.
Auxiliary engine for inclines, Clark & Standfield, 4237.
Tramway carriages, Kirkwood & others, 4410.
By compressed air & steam, Bonneville (*Howard*), 4417.
Mode of transmitting motion in, Bonneville (*Howard*), 4417.

**Propelling or driving machinery; transmitting power or motion:**
Adjustable pulleys for, Lake (*Allen*), 80.
Wool-washing machines, Holden & Holden, 114.
Power racks for rolling mills, Dyson, 122.
Sewing and other treadle machines, Wright, 140.
Looms, Whiteley & Harling, 244.
Looms, Lacaze (*Capon*), 287.
Spindles in spinning and doubling frames, Ramsden, 325.
Utilising the weight of materials for, Hahn, 360.
Throstle spinning or other frames, Leigh, 398.
Carding cylinders, Johnson (*Plantrou*), 420.
Sheets in heckling machines, Johnson (*Walker & Co.*), 475.
Operating cutters, Robinson, 717.
Spindles of spinning frames, Ramsden, 718.
Centrifugal machines, Lafferty & Lafferty, 755.
Friction gear, Salamon (*Lippman & Lind*), 795.
Sewing and other treadle machines, Wright, 877.
Grinding and smoothing machinery, Daglish & Daglish, 924.
Transmitting motion by "crank drums," Teulon, 930.
By compressed air, Prall, 979.
Book sewing-machines, Tongue (*Thompson*), 1000.
Boot cleaning and other machines by treadles, Ellis, 1061.
Apparatus for conveying power to a distance, Pattison, 1128.
Driving fans for supplying fuel to furnaces, Butcher, 1257.
Grinding, sharpening and other machines, Riches, 1301.
Imparting shaking motion to bolting frames, Childs, 1465.
Sewing-machines, Bishop (*Bishop & Hall*), 1527.
Varying the rotary motion of paper-pulp boilers, Brown, 1574.
By mechanical power, Gedge (*Bret*), 1579.
Transmitting and increasing motion, Lake (*Helmer*), 1606.
Actuating saw frames, Cox, 1696.
Transmitting power from "servo-motors," Clark (*Parent & [others*), 1924.
Millstone dressing cutters, Haseltine (*Dean & others*), 2068.
Multiplying power in printing machines, Nicholls, 2005.
Sewing-machines, Colborne, 2107.
Transmitting power to sewing-machines, &c., Bourdin, 2232.
Water-motor for light machinery, Kunstädter, 2318.
Driving spindles and flyers, Combe, 2348.
Air engine for light machinery, Stevens (*Laubereau*), 2364.
Rolls in rolling mills, Lake (*Tibbits & Weaver*), 2363.
Spindles used in craping hair, &c., Jowett, 2487.
Utilising rolling motion of ships for, Davies, 2537.
Operating dental and other engines, Bousfield (*Stow*), 2594.
Treadle, &c. mechanism for, Bousfield (*Stow*), 2596.
Sewing-machines, Pierce & Hutton, 2871.
Sewing and other machines, Jones, 2889.

**Propelling or driving machinery, &c.—*cont.***
Self-acting lever machine or motive-power for, White, 2892.
Traversing crank arrangements for engines, Hardy, 2902.
Sewing and other treadle machines, Wright, 2903.
Embroidery machines, Easton & others, 2958.
Transmitting power and continuing motion, Waller, 3017.
By power generated in hydraulic presses, Walker, 3075.
Several reels on one spindle, Wibberley, 3124.
Sewing or other light machines, Smith (*Proctor*), 3151.
Sewing-machines, Gedge (*Redon & Co.*), 3376.
Clutches for transmitting power, Craig & others, 3494.
Electro-magnetic engines for, Monckton, 3509.
Condensing air for, on board ship, Cave, 3629.
Transmitting power from shaft to shaft, Mégy & others, 3656.
Oscillating and revolving movement gear, Aspinwall, 3723.
Pulley apparatus for, Roberts, 3775.
Reversing and multiplying angular motion, Kempe, 3901.
Effecting rectilineal and parallel motions, Kempe, 3901.
Dividing angles for mechanical purposes, Kempe, 3901.
Sewing and other treadle machines, Wright, 3958.
Giving motion to saw frames, &c., Taffinder & others, 3971.
Intermittent motion for machinery, Crosland, 4023.
Agitators used in refining saltpetre, Haycraft, 4046.
Driving spindle flyers, Emsley & Smith, 4069.
Friction gear for forge fans, Rollins (*Kellogg*), 4136.
Transmitting and increasing motion, Simpson (*Simpson*), 4145.
Globe gear or universal joint for shafts, Small, 4159.
Sewing-machines, Jenkins, 4303.
Friction apparatus for printing machines, Ward, 4330.
Sewing-machines, Wilson, 4396.
Combining helical springs for, Holland & Phillips, 4484.

**Propelling ships; locomotion on water:**
Constructing and fitting screw propellers, Betteley, 48.
Electro-magnetic engines and propellers, Monckton, 285.
By the admission and expulsion of water, Clark (*Morton*), 290.
Light-draught vessels in shallow water, Thornycroft, 382.
Arrangement of propellers, Page, 470.
By power obtained from coiled springs, Barnett, 490.
Tug machinery for towing canal boats, &c., Greig & Byth, 527.
By water, acting as a "water screw," Wiles, 533.
Paddle-wheels, Lake (*Wilson*), 570.
Flat propeller blades, Brewer (*Weedermann & Sons*), 660.
Canal boats by elevated railways, Lake (*O'Toole*), 915.
Thrust bearings for screw shafts, Lake (*Godfrey*), 968.
Removing, &c. screw blades while afloat, Pinker & Adamson, [1236.
Propellers resembling oars, Keddy, 1263.
By propellers used for removing sand banks, Appleby (*Van [Rietschoten & Houwens*), 1283.
Portable raft propelling apparatus, Jelf, 1378.
Combined air and water engine for, Spartali, 1500.
Cranking driving shaft of screw propellers, Spartali, 1500.
By mechanical power, Gedge (*Bret*), 1579.
Adapting atmospheric and other engines for, Spill, 1586.
Multiplying revolutions of shafts, Lake (*Helmer*), 1656.
By paddles attached to endless bands, Martin, 1921.
By jets of steam & hot gases ejected from tubes, Wilson, 2042.
Constructing steering propellers, Hughes (*Mallory*), 2277.
By air discharged under water line, Bousfield (*DeFresne*), 2388.
Paddle-wheels with curved or spiral blades, Croft, 2437.
Testing propeller shafts, Handyside & Alley, 2455.
Forming & working screws for shallow & deep water, Reed, 2565.
Self-acting lever machine or motive-power for, White, 2892.
Hydro-thermic engine for, Tommasi, 2897.
Feathering paddle-wheel on screw plan, Spartali, 2900.
Increasing pitch and multi-bladed screw for, Spartali, 2900.
Utilising wave-power for, Bonneville (*Devlan*), 3051.
Adapting steel wire ropes for towing, &c., Bullivant, 3054.
Forging propeller shafts, Whitworth, 3064.
Removing, &c. screw blades while afloat, Pinker & Adamson, [3066.
By power generated in hydraulic presses, Walker, 3075.
Screw propellers and altering pitch of blades, Howden, 3246.
Slip hook for barge or boat hauling or towing, Rogers, 3301.
Utilising resistance of water in, Cook, 3371.
Electro-magnetic engines and screws for, Monckton, 3509.
Working screws at variable depths, Wimshurst & Reed, 3625.
Condensing air for, Cave, 3629.
Adapting, &c. two pairs of screws to steam barges, Byrne, 3637.
Screw steam barges, &c. for towing on canals, &c., Byrne, 3637.
Working oars or sculls while facing the bow, Saunders, 3747.
Couplings for propeller shafts, Russell, 3907.
Constructing, &c. propeller blades, Rothwell, 4072.
Repairing coupling for shafts, Tongue (*Stuart*), 4223.
Towing apparatus for canals, &c., Clark & Standfield, 4257.
Splints, &c. for repairing oars, Tongue (*Devrès*), 4361.
Locomotive, for towing boats, Bonneville (*Havard*), 4417.

**Prophylactic composition or paint.** *See* "Paints."

**Protecting wall fruit.** *See* "Plants."

**Protractors.** *See* "Mathematical instruments."

**Provision cans.** *See* "Cans."

**Provision safes.** *See* "Safes."

**Prussian blue.** *See* "Paints."

**Prussiates of soda and potassa.** *See* "Alkalies."

**Puddling metals.** *See* "Smelting."

**Pulleys, sheaves and drums:**
Adjustable or fast and loose, Lake (*Allen*), 80.
Using traction-engine wheels as, Burton, 338.
Breaks for, Stevens, 371.
Rope arresting apparatus for ships, Smith, 452.
Casting, Light, 710.
Applying lead to prevent slip on strap or belt, Stone, 787.
Friction, for book sewing-machines, Tongue (*Thompson*), 1000.
Snatch blocks for steam cultivators, Greenslade, 1241.
Screws for, Fryer & Hodgson, 1253.
For driving marine governors, Weir & Weir, 1329.
Rack, for window-blinds, Batsford & Bloore, 1334.
Breaks for pulley blocks, Crowley, 1483.
Rope stopper or check for blocks, Cutts & Dean, 1506.
Hollow drums for propelling gear of tram-cars, &c., Spill, 1586.
For land-tillage anchors, Greig & Shaw, 1657.
Self-adjusting, for window and like blinds, Festing, 2011.
Pawl contrivance for, Williams, 2133.
Compound, for transmitting motion, Bourdin, 2232.
Lubricating hub for loose pulleys, Barber (*Crane*), 2343.
Split sheaves for boat disengaging gear, Absalom, 2359.
Hubs for, Brehmer, 2665.
Pawl or retaining clip for, Kneebone & Gay, 2965.
Arranging axles of sluice or floodgate, Stoney, 3103.
Double block, for boat lowering apparatus, Rogers, 3301.
Retention and break apparatus for pulleys, Roberts, 3775.
Guide or "clasp pulley" to tighten cords on, Roberts, 3775.
Compound bush for pulley blocks, McAdam, 3966.
Rack, for window-blinds, Nicholas, 3995.
Friction, for portable forges, Rollins (*Kellogg*), 4136.
Lubricating axles of pulley-blocks, Stevenson, 4268.
Pulley blocks and friction pulley blocks, Wothered, 4446.

**Pulp for making paper.** *See* "Paper."

**Pulp strainers.** *See* "Filters."

**Pulping roots.** *See* "Root pulpers."

**Pulse.** *See* "Grain and seeds."

**Pulverising.** *See* "Grinding."

**Pumps; raising and pumping liquids:**
Hand, Robins, 23.
Rotary, Bousfield (*Manley*), 58.
Plunger or ram, Brookes, 84.
Valves, Benson (*Painter*), 121.
Packing the piston rod, Scaife, 176.
Steam, Hooker, 203.
Bushes for cranks in three-piston, Broadfoot, 239.
Hydraulic motive-power engines for working, Joy, 366.
Vapor, for cold producers, Harrison, 383.
Steam, Lumley, 403.
Steam, Cherry, 404.
General construction, Kayser (*Schultz*), 438.
Exhaust, for combined steam & caloric engines, Marchant, 509.
Single lifting, forcing or hand pump, Mc Beath, 601.
Centrifugal, West, 662.
Motor for operating, Robinson, 717.
Direct-acting without shaft or flywheel, Fielding, 788.
Rotary, for pumping or forcing, Cook, 840.
For mining, &c., Newton (*Silver & Attwood*), 873.
Cylinder, slide valve and steamways of steam, Pickering, 932.
Transmitting motion to, Teulon, 939.
Constructing and arranging steam, Alliott, 942.
For exhausting and forcing, Mirrlees (*Watson*), 972.
Rings used as valves and buckets, Moy, 977.
Raising water by compressed air, Prall, 979.
Hydraulic ram, Fyfe, 1016.
Suction and delivery valves of, Colebrook, 1043.
Fitting cylindrical glass tubes as barrels, Chedgey, 1075.
Reciprocating, Benson (*Cope & Maxwell*), 1086.
Valve gear or motion for steam, Bremme, 1106.
Automatic hydraulic apparatus for working, Pattison, 1189.
For acids and other corrosive liquids, Suffield, 1256.
Double-acting lift and force, Lake (*Baxter*), 1286.
Compressed air-engine to act as, Johnston, 1332.
Double screw apparatus acting as, Johnson, 1360.
Tidal power machine for working, Templar, 1434.
Making and working direct-acting, Lee, 1490.
Carbonic acid gas engine for working, Joyce (*Selten*), 1523.
For withdrawing liquids from casks, &c., Wilsher, 1543.
Condensers for steam pumping engines, Cherry, 1572.
Engine for working, Gedge (*Bret*), 1579.
Actuating valves of, Frost, 1619.
Excavating sand, &c. under water (sand pump), Kennard, 1707.

**Pumps; raising and pumping liquids—*cont.***

Rotary engine for pumping fluids, Beale, 1711.
Packing pistons of, Raines, 1713.
Rods and glands for same, Angus & Hammersley, 1743.
Excavating sand, &c. under water (sand pump), Kennard, 1815.
Utilising surplus pressure used in, Oram, 1868.
Double-acting injection water pump, Nehrlich, 1873.
Packing for stuffing-boxes of, Kirkman, 1896.
Working slides and expansion valves of steam, Davey, 1943.
For acids and other liquids, Hazlehurst, 1957.
Working steam, for compressing air, Russell, 1962.
Valves for steam, Wilson (*Craig & Brevoort*), 2059.
Lift pumps for mines, sewage and other works, Tipping, 2078.
Forcing water from steam-boilers, Wise (*Yagn*), 2155.
For raising or forcing water, Gamboni, 2185.
Oil from oil wells, by air pressure, Murphy, 2267.
Water from ships' holds, mines, wells & borings, Murphy, 2267.
Centrifugal, circulating and other steam, Anderson, 2268.
Raising and delivering sewage water, &c., Bentley, 2315.
Valve gear for steam, Bremme, 2361.
Air-engine, for houses, Stevens (*Laubereau*), 2364.
Direct-acting steam, to work expansively, Walker, 2371.
Combined steam-engine, blower and pump, Mackenzie, 2428.
Centrifugal circulating, Hunt (*Nillus*), 2491.
Rotary engine for pumping water, Higginson, 2552.
Double-action steam, Clark (*Atkinson*), 2563.
Turbines for pumping water, Lüdeke, 2663.
Admitting air into suction pipes of suction, Mushet, 2666.
Direct-acting steam, Bernays, 2674.
Utilising rolling motion of ships for working, Davies, 2687.
Steam, for raising or forcing liquids, Scott (*Haag*), 2758.
Direct-acting steam-pumping engine, Brown, 2805.
Centrifugal, and turbines for raising water, Lüdeke, 2850.
Securing covers over the suction, &c. orifices of, Hill, 2915.
Motive-power for working, Dufrené (*Lelievre*), 2971.
Lift, for liquids and vapours, Waller, 3017.
Double-acting, for discharging or ejecting, Druce, 3069.
Scroll disc rotary steam, Cooper, 3082.
Valves with large waterway, &c., Barker, 3164.
Reciprocating engines for working, Edwards, 3342.
Direct-acting steam, Benson (*Cope & Maxwell*), 3361.
Direct-acting reciprocating steam, Graig & others, 3494.
Ports and slide valves of steam, Craig & others, 3494.
Portable, &c. steam-engine for pumping, Richardson, 3503.
Propelling or driving, Monckton, 3509.
Reversible valve arrangement, Kirtley, 3525.
Semi-portable engines for pumping, Greig & Daniel, 3535.
Screw apparatus for pumping or forcing water, Johnson, 3545.
Steam or compressed air direct-acting, Hamilton, 3549.
Direct double-acting steam, Ashworth & Ashworth, 3567.
Cylinder and valve arrangement for steam, Wilks, 3621.
Direct-acting, worked by steam, air, &c., Parker & Weston, 3658.
Compound engine, adaptable as a steam, Hooker & Browne, 3661.
Centrifugal, Paget (*Nagel & Kaemp*), 3719.
Condensers for direct-acting steam, Holman, 3768.
Suction elevating apparatus, Johnson (*Vabe & Cuau*), 3807.
Regulating gear for, Fletcher, 3844.
Juice, for use in sugar making, Fletcher, 3844.
General construction of, Preston & others, 3917.
Arranging, for working hydraulic presses, Dack, 3922.
Actuating valves of, and reversing and starting, Evans, 3938.
Hydraulic, Bacon & Searle, 3954.
Using air vessel on bed plate of donkey, Hulme & Lund, 3960.
Steam and other rotary, Mills (*Teal*), 4035.
Steam pumping engine, for mines, &c. Walker & Pflaum, 4129.
Removing dead centres in crank shafts of, Davison, 4164.
Arranging cranks of syrup pumps, Bruce, 4180.
Three cylinder pumps, Willans, 4189.
Governing pistons of steam, Wolstenholme & Thorpe, 4212.
Direct double-acting steam, Ashworth & Ashworth, 4213.
Condensers for steam pumping engines, Binnie, 4297.
Working high and low pressure, Greey, 4357.
Detachable cylinders for mine and other, Lake (*Blake*), 4388.
Steam, for forcing & compressing, Bonneville (*Havard*), 4417.
For hydraulic baling presses, Mann (*Watson*), 4427.
Condensers for steam pumping engines, Saxby, 4436.
Compound reciprocating engine for, Clayton & others, 4455.
Enamelling pipes of, Haseltine (*American Enamel Co.*), 4486.
Force pumps for working engines, Truss, 4487.
Centrifugal, Anderson, 4490.

**Punching and stamping metals:**

Perforating straining or filtering surfaces, Deny, 16.
Out spindle warves, Leigh, 398.
Motor for operating punches, Robinson, 717.
Bow or loop of swing seals, Wilcox, 759.
Increasing power in punches, Kennedy, 860.
Central holes in tyres or hoops, Ashbury, 898.
Chain links, Clark (*David*), 975.
Arranging machines and dies for stamping, Scott, 1444.
Holes in jacquard cards, Bowker, 1999.
Sheets or discs for cylindrical boxes, James, 2072.
Nail holes in horse-shoes, Horsfall & Greenwood, 2266.
Perfect bolts by one stamp, Brown, 2805.
Using elastic medium in stamper cylinder, Browett, 2887.
Hydro-thermic machine for, Tommasi, 2906.

**Punching and stamping metals—*cont.***

Compound tool for piercing buttons, Harrison, 3093.
Forming depressions in buttons, Harrison, 3093.
Conical cups for metallic cartridges, Jones, 3129.
Central hole in nuts, Horsfall & Greenwood, 3141.
Central hole in screw nut blanks, Greenwood (*Vog'l*), 3142.
Openings or sashes in sheets, Hyatt, 3171.
Cam arrangement for increasing pressure in, Mc Nabb, 3296.
Stamping junction pieces for furniture, Atkins, 3465.
Metal strips in making bird cages, Robotham, 3554.
Designs on spoon handles, &c., Smily, 4202.
Stamping tubular bands in metal of trunks, &c., Evans, 4202.
Stamping or raising articles of sheet metal, Vaughan, 4429.

**Punching or perforating paper and tickets:**

Jacquard cards, Litchfield, 798.
Alarm ticket punches, Lake (*Cancelling Punch Co.*), 1967.
Holes in jacquard cards, Bowker, 1999.
Alarm or "registering ticket punch," Small, 2211.
Alarm or "registering ticket punch," Small, 2430.
For type composing, &c., Mackie & Waldenström, 2510.
Perforating in process of printing, Salmon & Wood, 2897.
Stamping or punching machine, Brookes (*Parjon*), 2967.
Pocket apparatus for, Lawrence & Lawrence, 3091.
Button holes in paper collars, &c., Reuter, 4137.

**Punkahs.** *See* "Blowing."

**Purifying and filtering.** *See* "Filters."

**Purifying gases.** *See* "Gas (making)."

**Purifying metals.** *See* "Smelting."

**Purifying middlings.** *See* "Sifting."

**Purifying water.** *See* "Filtering."

**Purpurine.** *See* "Dyes."

**Purses:**

Fastenings for, Hathaway, 2302.

**Pyrophones.** *See* "Musical instruments."

## Q.

**Quarries.** *See* "Tiles."

**Quarrying.** *See* "Mining."

**Quartz crushers.** *See* "Grinding minerals."

**Quays.** *See* "Harbours."

**Quilting machines.** *See* "Sewing."

**Quilts.** *See* "Weaving."

**Quinine and quinoidine.** *See* "Medicines."

## R.

**Rabbeting.** *See* "Cutting wood."

**Rabbles.** *See* "Smelting."

**Rack pulleys.** *See* "Pulleys."

**Racking or filling casks.** *See* "Casks."

**Racks or frames for dishes.** *See* "Dishes."

**Rafters.** *See* "Beams."

**Rafts:**

Air beds used as life, Cotter, 1.
Combined mattress and life, Swale, 340.
Wreck life-boat or life, Hicks, 544.
Constructing, propelling and steering portable, Jelf, 1273.
Long raft-like life-buoy, Gillett, 2523.
Adapting swimming belts to life, Count de Liancourt, 3[illegible].
Employing ships' rails or bulwarks as, Mead (*Newbery*), 4[illegible]

**Rags and textile waste; rag-engines:**
Drying by heated air, Gibbs, 50.
Utilising silk waste ("Bourrette"), Mewburn (*Chalumet*), 156.
Cleansing cotton waste, Ford, 269.
Preparing and combing waste silk, Lister, 299.
Cutting out or separating the seams of, Smith, 386.
Squeezing liquid matter from old used waste, Hall, 468.
Cleaning silk waste ("Varley's machine"), Mason & Mason, 821.
Washing cotton waste or sponge cloths, Bradford, 1273.
Utilising waste hair, old carpets, &c., Smith (*Melville*), 1314.
Utilising glove waste, Muratori, 1524.
Shake willey for removing dirt or dust from, Knowles, 1581.
Separating silk fibres from waste cocoons, Gaddum, 1618.
Disintegrating silk rag fibres, Abel (*Mueller*), 1636.
Preparing waste for combing, Pearson & others, 1818.
Extracting grease and oil from waste, Newton (*Ralph*), 1951.
Preparing and combing silk waste, Lister, 2003.
Extracting oil, &c. from cotton waste, Bentley, 2262.
Process and engine for reducing, Haseltine (*Laffin*), 2294.
Heating rag boilers by air, Taylor, 2626.
Cleansing cotton waste, Scaife, 3602.
Rag engine, Labrousse, 3819.
Picking rags, &c. for paper-making, Latour, 3948.
Cleaning cotton waste, Ford, 4150.
Cleansing and utilising cotton waste, Kirton, 4299.
Extracting oil from cotton waste, Bentley, 4452.

**Railway axles.** *See* "Axles."

**Railway breaks.** *See* "Breaks for carriages."

**Railway buffers:**
Buffers and automatic couplings, Jensen (*Skidmore*), 1062.
General construction of, Turton, 1091.
Cases for springs, Gatwood & Spencer, 1220.
Making, &c. india-rubber globe springs, Lindblad & Edey, 2604.
Obviating play between buffer heads, Ibbotson, 2613.
Automatic coupler and buffer, Cheesbrough (*Pooley*), 2800.
Combined automatic buffer and coupling, Talbot, 3023.
Combined central buffer and draw gear, Banks, 3181.

**Railway carriage lamps.** *See* "Lamps."

**Railway carriages, waggons and trucks:**
Bed and bedstead for sleeping cars, Cotter, 1.
Coal pit waggon wheels, Bonneville (*Lambert*), 110.
Couplings, Cohrs, 142.
Couplings, Ward, 158.
Locking and unlocking doors, Hartmann & Hartmann, 229.
Pinch bars for removing, Morrill, 267.
For central rail railways, Adorno, 512.
Constructing and propelling by manual power, Dix, 582.
Self-acting couplings, Kemp, 608.
Automatic couplings, Sterne, 723.
Automatic couplings, King, 763.
Disconnecting when in motion, King, 763.
Coupling bars, Carpenter, 916.
Automatic couplings, Sedgwick, 1035.
Automatic couplings, Jensen (*Skidmore*), 1062.
Door lock, Whitworth, 1095.
Cylindrical or rolling, Walker, 1164.
Pneumatic couplings, Bonneville (*Marchand*), 1170.
Self-locking catches for wagon doors, Heginbothom, 1194.
Preventing injury to passengers in collisions, Crisp, 1234.
Couplings; lengthening and shortening draw bars, Cohrs, 1250.
Saloon carriage windows, Powell, 1254.
Transporting coal in, Napier, 1313.
Automatic couplings, De Mattos, 1325.
Automatic couplings, Clarke & Hilton, 1402.
Self-acting catch for wagon doors, Taylor & Taylor, 1407.
Dust proof window-blind, Rich, 1456.
Locking and unlocking doors, Sanders, 1522.
Increasing traction or propelling power of trains, Tongue (*Chamberlain & Mandelbaum*), 1525.
Preventing noise from slamming of doors, Baker, 1631.
Deadening shock in collisions, Allen & Fitzpatrick, 1737.
Constructing and guiding single rail, Smith, 1849.
Raising and preventing windows rattling, &c., Adams, 1852.
Self-locking couplings, Page (*Todd*), 1853.
Fasteners for wagon doors, Leach & Leach, 1860.
Constructing to prevent shocks, &c., Haseltine (*Higley*), 1936.
Fitting axle-boxes to frames of, Dobson, 1956.
Covering for tops of, Hawksworth, 1968.
Automatic couplings, Coulter, 1994.
Trollies or tip waggons, Styles, 2035.
Springs for, Clark (*Styles & others*), 2041.
Detachable bodies for, in case of collision, Dodshon, 2091.
Automatic couplings, Cook, 2096.
Connecting breaks to serve as couplings, Edwards, 2098.
Couplings operated from outside buffers, Bauer, 2158.
Automatic couplings, Henckel, 2177.
Diminishing noise and vibration in, Brakell, 2190.
Disconnecting tender and engine from, Wallwork, 2207.
Window sash holders or sustainers, Fletcher, 2227.
Suspending bodies of, Scott, 2290.
Preventing noise and vibration in, Scott, 2290.

**Railway carriages, waggons and trucks—*cont.***
Reducing vibration, &c. in, Clark, 2296.
Couplings, Handyside, 2323.
Refrigerators for, Haseltine (*Bate*), 2352.
Self-acting couplings, Spence (*Willson*), 2394.
Couplings and operating same outside rails, Wagner, 2422.
Self-acting couplings, Ibbotson, 2613.
Electric cable and chain coupling for, Winter, 2637.
Head or guard-railings for, Maquet, 2670.
Couplings, for attaching from the sides of, Cohrs, 2672.
Elliptic springs for, Lake (*Cliff & Vose*), 2712.
Device for replacing, on track, Newcomb, 2722.
Cooling meat, &c. during transit in, Dufrené (*Tellier*), 2770.
Forming links for couplings, Gray & Taylor (*Selden*), 2772.
Means of coupling, outside buffers, Axon & Bullough, 2777.
Automatic coupler and buffer, Cheesbrough (*Pooley*), 2800.
Spiral bearing and draw springs, Byron (*Godley*), 2817.
Ventilating flue mouths for sleeping cars, Roberts, 2843.
Suspending bodies of and springs for, Henry (*Giffard*), 2882.
Bogies for, and constructing, Fidler & Cockburn-Muir, 2890.
With movable bodies, &c. to avoid transhipment of goods, [Clark (*Dathis*), 2951.
Equilising pressure on springs of, Miller, 2964.
Controlling motion in, Morgan-Brown (*Ford*), 2972.
Combined automatic buffer and coupling, Talbot, 3023.
Transmitting motion to, Morgan-Brown (*Chamberlain*), 3110.
Trucks for conveying either cattle or goods, Dorn, 3116.
Compartments for, with continuous platform, Banks, 3181.
Draw gear for and coupling, Banks, 3181.
Loading coal trucks from minery wagons, Lake (*Upsom*), 3198.
Catch and slip hook for draw bars, Rogers, 3301.
Constructing and adapting stanchions to, Chapman, 3438.
Means of coupling, outside buffers, Hartley, 3542.
Automatic safety door fastener, Scourfield, 3563.
Automatically locking and unlocking doors, Matthews, 3564.
Automatic coupler, Redgrave & Redgrave (*Mills*), 3593.
Automatic couplings, Stableford, 3643.
Locks or fastenings for doors of, Jones, 3657.
Self-disconnecting hook for use in unloading, Enright, 3785.
Self-acting coupling and disconnecting gear, Chappell, 3871.
Springs for, Simpson (*Simpson*), 4134.
Constructing and adjusting couplings, Lake (*Becker*), 4171.
Self-acting fastener for doors of, Davenport, 4211.
Means of coupling, outside buffers, Wilkinson, 4229.
Automatic couplings, Sterne (*Horack*), 4242.
Side tipping waggons, Greig, 4284.
Simultaneously fastening and unfastening doors, Hart, 4345.
Station and destination indicator for, Hart, 4345.
Opening and closing doors of, Rammell, 4380.
Pneumatic railway carriages, Rammell, 4380.

**Railway carriages (heating).** *See* "Heating."

**Railway carriages (ventilating).** *See* "Ventilating."

**Railway keys.** *See* "Locks."

**Railway signals.** *See* "Signals."

**Railway wheels.** *See* "Wheels for carriages."

**Railways:**
Metal for rails, Browne (*Foundries & Forges Co.*), 220.
Working and securing facing points, Dutton, 230.
Fan for ventilating underground, Van de Weerd, 245.
Constructing and joining rails of, Monckton, 265.
Actuating and locking points, Marlow & others, 274.
Interlocking points, Saxby, 294.
Self-fastening and gripping chair, Wilde, 329.
Self-laying or portable, Burton, 338.
Switches, Black, 408.
Elastic steel frogs for crossings, Wichmann (*Patterson*), 410.
Guard or safety signal for points, Marchant, 415.
Working points automatically by the engine, Cooper, 417.
Dies for cutting railroad bars, Newton (*Stevens*), 418.
Actuating and locking points, Webb, 442.
Actuating and locking points, Webb, 494.
Forming and securing facing points or switches, Curtis, 502.
With central T shaped rails, Adorno, 512.
Self-adapting snow plough, Smith (*Perkins & Stowe*), 592.
Automatic registering of switch levers, Wollaston, 596.
Endless or portable, Dunlop, 657.
Method of ascertaining obstructions on, Landau, 768.
Points or switches and crossings, Burn & Green, 774.
Working facing points, Steward, 845.
Ready withdrawal bolt for fastening rails, Seaton, 886.
Elevated or overhead, Lake (*O'Toole*), 915.
Preventing the slipping of wheels on, Dawber, 928.
Working and locking points, Bailey, 958.
Raising or lifting permanent way, Tangye, 967.
Preserving keys and sleepers, Tugwood, 963.
Locking switches, gates, bridges, turntables, &c., Rapier, 1064
Chairs, to dispense with wooden wedges, Nuttall & Taylor, 1117.
Locking frame and levers for working points, Stevens, 1125.
Working or operating level crossing gates, Beynon, 1237.
Running locks and cam rods of point levers, Bailey, 1330.

**Railways—*cont.***

Casting and rolling steel rails, Fox, 1486.
Preserving sleepers, Knowles, 1526.
Mastic for use in forming, Rae, 1674.
Points or switches, Jones, 1761.
Constructing single rail, Smith, 1849.
Bolts and nuts for fish plates, Neuhaus (*Liebing*), 1875.
Locking switches & crossing gates, Cooper & Campin, 1893.
Actuating switches, Ford, 1894.
Preventing collisions on, Van der Mey (*Ansingh*), 1933.
Applying and fastening saddle rails, Seaton, 2010.
Joining ends of flat bottomed rails, Turner (*Sarney*), 2087.
Wedges & securing same in chairs, Smith & Whittaker, 2105.
Chair for, and suspending rails, Smith & Whittaker, 2105.
Compound material for, and constructing, Brannon, 2128.
Portable endless, Clark (*Caillaux*), 2200.
Interlocking levers for switches and points, Spence, 2314.
Constructing, actuating and locking points, Kelly, 2421.
Locking gear for points, Stephens & Brooks, 2513.
Chairs, to dispense with fish-plates and keys, Wilde, 2518.
Flat bottomed rails and "slide chairs" for same, Labett, 2521.
Preventing trains leaving the rails, Labett, 2521.
Piling steel and H iron for making rails, Griffiths, 2548.
Saddle rails and method of laying and securing, Seaton, 2829.
Double keel rail joint, Batho (*Leslie & Molesworth*), 2869.
Combining chairs with sleepers, Braun, 2940.
Securing and holding rails in chairs, Braun, 2940.
System of sidings, &c. for avoiding trans-shipment of goods, [Clark (*Dathis*), 2951.
Loose gauge for sharp curves, Lovell (*Lovell*), 3106.
Metallic sleepers and other parts of, Lovell (*Lovell*), 3106.
Excavating clay and earth for cuttings of, Lawrence, 3180.
Working and interlocking points, Burn & Green, 3185.
Suspenders or bearers for supporting rods, Entwistle, 3298.
Rails and chairs for electric signalling, Salomons, 3515.
System of starting and working trains on, Salomons, 3515.
Portable points for replacing carriages, &c., Russell, 3544.
Working and locking points, Farmer, 3569.
Rolling rails, Brown, 3640.
Mounting and working crossing gates, Aldridge, 3659.
Rails and sleepers, Livesey, 3667.
Ventilating underground, Chambers, 3676.
Switch, to arrest carriages while shunting, Footner, 3701.
Controlling working of switches, Clark (*Lartigue*), 3771.
Electric point indicator, Bevan, 3793.
Constructing and combining materials for, Turner, 3794.
Wood rails, to increase frictional surface, Turner, 3794.
Actuating and interlocking points, Webb, 3916.
Trough or ribbed rails with flat flanges, &c., Smith, 3973.
Fishing rails upon inner & outer side, Evans (*Hampson*), 3985.
Locking and interlocking point levers, Baines, 4010.
Chairs for and securing keys of, Grice (*Kirkpatrick*), 4060.
Avoiding gaps in main rails of crossings, Smith, 4113.
Metallic sleepers and keys or wedges, Clark (*Jucqueau*), 4120.
Working points or switches pneumatically, Chambers, 4293.
Pneumatic railways and tubes, Rammell, 4380.
Fastenings for permanent way, Rammell, 4380.
Permanent way for, Gedge (*Besselling*), 4422.

**Raised patterns.** *See* "Embossing."

**Raising and lowering ships.** *See* "Ships (raising)."

**Raising cargo from wrecks.** *See* "Ships' cargoes."

**Raising or impelling by jets.** *See* "Jet apparatus."

**Raising ships' boats.** *See* "Ships' boats."

**Raising sunken vessels.** *See* "Ships."

**Raising water.** *See* "Pumps."

**Raising weights.** *See* "Hoists."

**Rakes (garden).** *See* "Garden implements."

**Raking and turning hay.** *See* "Hay-making."

**Rams for naval warfare.** *See* "Ship-building."

**Rams for presses.** *See* "Hydraulic presses."

**Range finders.** *See* "Telemeters."

**Ranges.** *See* "Fireplaces."

**Rasps.** *See* "Files."

**Rat and mouse traps.** *See* "Traps."

**Ratchet and drill braces:**

Adapted to work either left or right handed, Noble, 291.
Self-acting feed for the drill or tool, Noble, 291.
Device for producing intermittent motion, Dunn, 503.
With same movement backward & forward, Lake (*Evans*), 3918.

**Ratchet break apparatus.** *See* "Breaks."

**Razors.** *See* "Hair-dressing."

**Reading desks.** *See* "Furniture."

**Ready reckoners.** *See* "Teaching."

**Reaping and mowing machines:**

Adjusting height of cutters, Burgess & Burgess, 153.
Removing knives of, Burgess & Burgess, 153.
Throwing main wheels in & out of gear, Burgess & Burgess, 153.
General construction, Grubinski, 281.
Binding cut corn into sheaves, Hughes, 921.
Securing fingers and linings; making frames, Kearsley, 1288.
Grinding and sharpening knives or cutters, Riches, 1301.
Rendering scythe blades adjustable, Bjarnason, 1499.
General construction, Wood, 1816.
Controlling and operating, Benson (*Whitely*), 2173.
Lawn-mowers, Schlesinger, 2215.
Attaching edge cutters to lawn mowers, Holt & Dawes, 2239.
Lawn-mowers, Schlesinger (*Williams*), 2340.
Adjusting bottom cutters in, Roberts & Wigfull, 2413.
Self-delivery reapers, Cranston (*Wood*), 2564.
Gathering and tying up corn, &c. in sheaves, Hillam, 2645.
Rakes and rake operating mechanism, Osborne, 2754.
Combined reaper and binder, Earl, 2768.
Arranging and constructing self-delivery, Yull, 3102.
Operating gathering rakes in, Samuelson & Manwaring, 3282.
Arranging draught tackle in, Samuelson & Manwaring, 3285.
Collecting and binding corn, Mewburn (*Saladin*), 3344.
Combined potato-digger, riddle and reaper, Christie, 3353.
Propelling or driving, Monckton, 3509.
Fitting moveable seat supports on or to, Cranston, 3691.
Delivery apparatus and cutter bars, Burgess & Burgess, 3891.
Pins for connecting knives of, Burgess & Burgess, 3891.
Self-delivery reaper, Samuelson & Manwaring, 3921.
Rear cutting reaper springs, Samuelson & Manwaring, 3921.
Bearing surface for fingers, Samuelson & Manwaring, 3921.
Combined reaper, binder and knot-tyer, Horton, 4056.
Lawn mowers ("Studley Royal"), Parkinson, 4081.
Collecting and turning loose straw, Wagstaff, 4092.
Self-binding harvesters, Lake (*Gordon & others*), 4109.
Pitman rod holder of, Griffin (*Wood*), 4124.
Constructing, arranging & combining, Hornsby & others, 4174.
Making knives of semi-bright, Osborn, 4206.
Knife blades, fingers, teeth, &c. of, Tenwick, 4240.

**Rearing and breeding oysters.** *See* "Oysters."

**Reburning animal charcoal.** *See* "Charcoal."

**Recovering metals.** *See* "Smelting."

**Rectifying spirits.** *See* "Distilling."

**Rectilineal motions.** *See* "Propelling or driving."

**Red lead.** *See* "Oxides."

**Reducing metallic ores.** *See* "Smelting."

**Reeds for looms.** *See* "Weaving (lays)."

**Reeling yarns.** *See* "Winding."

**Reels.** *See* "Bobbins."

**Refining metals.** *See* "Smelting."

**Reflectors:**

Applying, to revolving lamps, &c., Abrahams, 251.
For tram-car lamps, Cramp, 407.
For "sun-lights," &c., MacCallan, 444.
For gas-burners, Siebert, 622.
Adjusting to lamps and lampascopes, Souchard, 773.
For gaseliers and "sun lights," Kilpatrick, 1015.
Prismatic, for lamps, Stockman & Bennett, 1077.
Applying polished, to fire grates, Whitworth, 1286.
Of heat for maturing hop plants & fruit trees, Bowden, 1654.
Or "hour glass reflectors" for all round lamps, Clapp, 1960.
For reading and microscopic lamps, Parkes, 2162.
Making glass with crimps for day-light, Hyatt, 2752.
Cooling lamp, Parkes, 3464.
For applying electric light in mines, Monckton, 3509.
For lamps, to indicate street names, &c., Parkman, 3862.
Applying, to water gauges, Crossley & others, 4111.
Reflecting light in dental operations, &c., Stewart, 4173
Applying, to gas-burners, Weston, 4239.

**Refrigerators; refrigerating; cooling:**

Ice-making, cooling worts, &c., Harrison, 383.
Ice-making, West, 451.
Pump or apparatus for, McBeath, 601.
Cooling oleine in making artificial butter, Hipkins, 664.
Cooling wort in brewing, Barlow (*Galland*), 678.
Ice dividers and tubes or cells of ice boxes, Smith, 896.

**Refrigerators; refrigerating; cooling—*cont.***

Refrigerators or ice safes, Benham & Froud, 836.
Ice-making and cooling liquids, Martin, 936.
Cooling water by expansion of compressed air, Imray, 981.
Cooling liquids, Hackin, 1001.
Producing, preserving, and using ice, Harrison, 1244.
Ice safes; recovering salts in making ice, Harrison, 1244.
Ice-making, cooling worts, &c., Joyce (*Selten*), 1523.
Preserving food, &c. by, Mort (*Nicolle & Mort*), 1573.
Cooling ale, beer, &c. for drinking, Clark (*Ridgway*), 1694.
Milk and cream for preservation, Hald (*Frölich*), 1770.
Cooling worts and liquids, Henderson & Ritchie, 1801.
Portable refrigerator, preserver and cooler, Coles, 1848.
Producing cold air for ice-making, Nehrlich, 1873.
Stage process of pumping air for, Marchant, 1946.
Compound material for making ice safes, Brannon, 2027.
Ice-making, Weatherby, 2115.
Stone-ware water coolers, Morgan & Moelchaerek, 2245.
Moveable freezing cells to make thick ice, West, 2336.
Preserving food, Haseltine (*Bate*), 2352.
Arranging, &c. tubes in refrigerators, Wilson & Steele, 2397.
For working thermodynamic engines, Jenkin, 2441.
Ice-making, Benson (*Beath*), 2460.
Rendering ether more productive in, Gamgee & Purkis, 2621.
Using glycerine in lieu of brine, Gamgee & Purkis, 2621.
The "revolving freezer," Mort (*Nicolle & Mort*), 2763.
And desiccating articles of food, Dufrené (*Tellier*), 2770.
Non-conductor for ice-safes, Peacock, 2833.
Cooling worts and other liquids, Bycroft, 2991.
Carbonic acid gas, &c. for motive-power, Waller, 3017.
Arranging and grouping pipes for, Waller, 3017.
Arranging and working ice-boxes and connections, Kyle, 3241.
Refrigerators for preserving food, Peacock & Bradley, 3243.
Ice-making, &c., Siddeley & Mackay, 3425.
Jet apparatus for cooling hot liquids, Körting, 3505.
Ice-making and cooling liquids; saving fuel, Nield, 3571.
Applying, in condensing steam, for water, Low, 3638.
For preserving fruit, meat, vegetables, &c., Lake (*Bate*), 3790.
Cooling distilled water, Lake (*Lighthall*), 3853.
Cooling water for steam-engine condensers, Cook, 3890.
Cooling saltpetre during crystallisation, Haycraft, 4046.
Compressing air for cooling water, Newton (*Willans*), 4084.
Ice-making, Benson (*Beath*), 4152.
Ice boxes for preserving food, Haseltine (*Bate*), 4321.
Producing cold, Kirk & Beilby, 4329.
For making aërated and other waters, Ross, 4414.

**Refuse waters (treating).** *See* "Manure."

**Registering, indicating and marking:**

Passenger apparatus for tram-cars, &c., Emslie, 40.
Strength of wood, iron, &c., Haseltine (*Thurston*), 96.
Passenger apparatus for tram-cars, &c., Robertson, 116.
Distance traversed by vehicles, Kessel & Seydeler, 149.
Checking tram-car and omnibus fares, Wallis, 528.
Tell-tale money box for omnibuses, &c., Bradley, 586.
Movement of signal and switch levers, Wollaston, 596.
Railway signals and messages, Wollaston, 596.
Liquids drawn off from casks, &c., Hughes, 734.
And counting corks, Mitchell, 929.
Distance travelled by carriages, Bonneville (*Brunot*), 1004.
Fare collecting box for tram-cars, &c., Kaye & Kaye, 1005.
Passenger apparatus for cars, &c., Dolman & Benjamin, 1134.
Speed and progress of railway trains, Groubman, 1251.
Receipt of monies in tram-cars, &c., Richards, 1393.
Speed and distance run by ships, Robinson, 1416.
Speed of rotating bodies, carriages, &c., Wier, 1469.
Lengths of yarn, in sizing, &c., Lancaster & Dollander, 1569.
Pressure, weight & temperature, Johnson (*Redier & Co.*), 1587.
Alarm ticket punch, Lake (*Cancelling Punch Co.*), 1667.
Billiards and similar games, Beck, 1668.
Quantity drawn by beer-engines, Pontifex, 1733.
Whist and other games of cards, Smith, 1809.
Recording monies received by conductors, St. John, 2004.
Billiard and similar games, Ollis, 2184.
Number of times used & distance run by cabs, &c., Jones, 2186.
Indicating time occupied by cabs, Macpherson, 2202.
Alarm or "registering ticket punch," Small, 2211.
Issuing tickets to check fares, &c., Betteley & Davison, 2276.
Receipt of monies in cars, theatres, bars, &c., Maas, 2286.
Indicating names of railway stations, Mudge, 2341.
Apparatus for tram-cars, theatres, &c., Waterhouse, 2410.
Alarm or "registering ticket punch," Small, 2430.
Double registering turnstile, Lowry, 2515.
Fare recorder and classifier, Haseltine (*Chesterman*), 2811.
Boxes for collecting fares, &c., Carter & Carter, 2864.
Check register for tram-cars, &c., Bradley, 2944.
Pawnbrokers' pledge checking apparatus, Brockbank, 3015.
Fluids discharged from vessels or chambers, Atkins, 3101.
Marking yarns in sizing machines, Bailey, 3104.
And indicating money taken in shops, at bars, &c., Cox, 3130.
Strain to which steam cranes, &c. are subjected, Taylor, 3583.
Collecting & checking money in cars, theatres, &c., Hall, 3669.
Counting apparatus for general purposes, De Souza, 3698.
The movements of machinery, Clark (*Lartigue*), 3771.
Billiard and other games and purposes, Colles & Bailey, 3927.

**Registering, indicating and marking—*cont.***

Astronomical recording apparatus, Colles & Bailey, 3927.
Fare register for public vehicles, Jacobsohn, 3961.
Numbers constituting different groups, Jacobsohn, 3961.
Automatic tide indicator, Adams, 4166.
Hopper with lock for fare, &c. collecting boxes, Kaye, 4118.
Stamping and registering tickets, &c., Brockbank, 4259.
Apparatus for tram-cars, buildings, &c., Allin, 4412.
Number and value of tickets issued, &c., Bradley & Bull, 4479.

**Registering speed of machinery.** *See* "Indicating."

**Regulating speed of engines.** *See* "Governors."

**Regulators (gas).** *See* "Gas regulators."

**Reservoirs.** *See* "Cisterns."

**Resins and gum-resins.** *See* "Gum."

**Respirators:**

For firemen, miners, spice grinders, &c., Lake (*Beardsley*), 857.
To be worn on the body, &c., Carrick, 1501.
Tubes for divers, Applegarth (*Denayrouse*), 2015.

**Rests and ink guards for pens.** *See* "Pens."

**Retorts:**

Portable oil-gas, Lamont, 3.
Combining steam-boilers with, Dudgeon, 20.
Hydraulic charging apparatus, Foulis, 153.
For reducing furnaces, Kyte (*Wilson*), 339.
Using cradles in gas, Whittingham (*Payne*), 348.
Removing pressure on gas, Caffall & Thomas, 467.
For carburetted hydrogen gas, Yarrow, 598.
Fire-bars and feeding, Mc Beath, 601.
For distilling bituminous substances, &c., Mc Beath, 601.
Joints for gas, Lake (*Floyd*), 679.
For making bisulphide of carbon & saving fuel, Johnson, 687.
Securing lids of gas and other, Braidwood, 697.
For gas making, Somerville, 733.
Arranging, charging and discharging gas, Warner, 864.
Constructing, setting & working gas, Newton (*Davison*), 919.
For reburning animal charcoal, Buchanan & Vickess, 923.
Cleaning gas, Ledingham, 1041.
Setting and constructing gas, Keith, 1066.
Gas, Jensen (*Erichsen & Maardt*), 1072.
For coking powdered peat or coal, Lyttle, 1096.
For reburning animal charcoal; saving fuel, Denton, 1130.
Asbestos packing for, Cleghorn & Paterson, 1145.
Relieving pressure in gas, Porri & Leigh, 1279.
Combining lime kiln with gas, Wanchope & Cowan, 1338.
For charring peat or wood, Radeke & Smyth, 1355.
Fuel-saving furnace for heating, De Pindray, 1719.
For use in making phosphorus, Hunter, 1811.
For distilling shale oil and gas-making, Bell, 1824.
For making iron and steel, Johnson (*Peckham*), 1858.
Charging gas, West, 1978.
Machinery for making clay, Cliff, 2034.
For gas-making, Lake (*Harkness*), 2169.
For reducing ores of manganese, &c., Ireland, 2395.
Charging and drawing gas, Warren & Wates, 2434.
Two chambered gas, Newton (*Elmer*), 2495.
Arranging spiral flues around gas, Bowness & Judge, 2682.
Mouthpieces and doors with water spaces, Rowbottom, 3095.
Charging and discharging mechanically, Rowbottom, 3095.
Cooling and carrying away coke, Rowbottom, 3095.
Removing pressure from, Chandler & Stevenson, 3252.
Arranging gas vaporising stills or, Day (*Eichbaum*), 3281.
For making carburetted hydrogen gas, Robinson, 3346.
Charging and drawing gas retorts, Foulis, 3487.
Feeding gas, Haseltine (*Bothwell*), 3489.
For carbonising spent tan, Murdoch (*Honnaij*), 3583.
Refractory material for making, covering, &c., Horne, 3641.
Gas retort mouthpieces; lids and hinging same, Holman, 3687.
Consuming smoke in furnaces of gas, Jowett & Hunter, 3739.
Charging and drawing, in making gas from sewage, Vallé, 3784.
For vaporising hydro-carbons for air-gas, Fogarty, 3792.
Retort oven furnaces for metals, Smyth & Simpson, 3840.
Shaping, &c. annealing retorts, Morgan, 3847.
For use with blast vacuum furnaces, Smyth & Simpson, 3881.
Mechanical stoker scoops for charging gas, Robinson, 3997.
For distilling ammonia in ice-making, Benson (*Beath*), 4152.
For distilling carbonaceous materials, Ireland, 4215.
Vertical, for producing charcoal and coke, Ireland, 4215.
Securing lids or covers of gas, Herring, 4366.

**Revivifying animal charcoal.** *See* "Charcoal."

**Revolution indicators.** *See* "Indicating."

**Revolving brushes.** *See* "Brushes."

**Revolving fire-arms.** *See* "Fire-arms."

**Revolving shutters.** *See* "Shutters."

Ribbons. *See* "Trimmings."

Ribs or girders. *See* "Beams."

Rice (hulling, polishing, &c.). *See* "Hulling."

Ricking straw, &c. *See* "Stacking."

Riding habits. *See* "Wearing-apparel."

Riddles. *See* "Sifting."

Rifles. *See* "Fire-arms."

Rifling metals. *See* "Boring."

Rigging or doubling woven fabrics. *See* "Finishing."

Rigging (ships'). *See* "Ships' rigging."

Ring and traveller frames. *See* "Spinning."

Rings or hoops. *See* "Hoops."

Rink skates. *See* "Skates."

River facings. *See* "Breakwaters."

Rivers (deepening). *See* "Dredgers."

Rivets. *See* "Nails."

Rivetting metals:

Boxes, trunks, coal vases, &c., Mobr, 152.
Percussive machinery for, Warsop & Hill, 1181.
Ships, bridges, &c., Purdie, 1427.
Percussive engine for, Darlington, 1724.
Machine or engine for, Haseltine (*Thurston*), 2741.
Hydro-thermic machine for, Tommasi, 2907.

Road-making; foot-paths:

Asphaltum concrete for, Van Camp & Clark, 33.
Blocks or slabs of blast furnace slag, Woodward, 128.
Combining wood saw-dust and asphalte, Davies, 400.
Of wood with roughened surfaces, Hyatt, 432.
Hoe or path cutter for, Clark (*McKinley*), 458.
Covering and waterproofing, Macintosh, 449.
Imitation marble tesselated pavements, Deléon, 525.
Process and composition for paving blocks, Deléon, 528.
Rollers for, Campbell & Somerville, 538.
Sawing and preparing wooden blocks, Light, 724.
With small granite blocks, Pinnington, 732.
Wood pavements set with glass, Hyatt, 783.
Metallic artificial paving stone, Chomé-Steinbach, 1290.
Fitting plugs in to obtain greater foothold, Cotton, 1471.
Treating wood for ("wood macadam"), Morison, 1476.
Mastic for bedding, jointing and pointing blocks, Rae, 1674.
Stamp or rammer for consolidating, Clark (*Chenot*), 1676.
Boards set edgewise and secured by spikes, Gabriel, 1819.
Utilising rock lava, &c. as a paving composition, Shum, 1901.
Material or fabric for pavements, Hawksworth, 1968.
Constructing, maintaining and repairing, Brannon, 2033.
Stone-coating pavements, McGrigor (*Robertson*), 2047.
Making and repairing wood pavements, Remington, 2095.
Compound material for and constructing, Brannon, 2128.
Flagging the ground before paving, Dunn, 2175.
Spreading or distributing stones, Willacy, 2306.
Blocks of spheres, projecting through plates, Cotter, 2369.
Cement or plastic compound for blocks, O'Friel, 2500.
Advertising block for pavements, Cotter, 2545.
Applying japanned metals to pavements, Hughes, 2593.
Moulded blocks of cobbles, asphalte, &c., Zadig, 2726.
Paving tiles or blocks, Roettger, 3008.
Mastic of asphalte for curbing and, Skinner, 3217.
Factitious paving stone, Chomé-Steinbach, 3520.
Treating wood for ("wood mosaic"), Morison, 3744.
Of strips of wood combined with asphalte, &c., Guthrie, 3762.
Studding asphalte roads to prevent slipping, Guthrie, 3762.
Composition for and making anti-slippery blocks, Sheil, 3830.
Composition for pavements, Oppenheimer (*Hirsch*), 3884.
Preventing asphalte from fracturing, Macleod, 3994.
Uniting asphalte, cement, &c. for blocks, Macleod, 3994.
Cutting and laying wooden blocks or cubes, Light, 4091.
Using beetling machines for, Lowry, 4131.
Consuming smoke in compressers, Gedge (*Dubois*), 4301.
Machinery for cutting roads, Leigh, 4320.

Roads (cleansing, sanding and watering):

By imbedded perforated pipes, Brown, 693.
Street-sweeping machine, Robinson, 1167.
Water cart or van, Pearson, 2126.
Watering foot-paths, Hall & McLeish, 2258.
Spreading or distributing sand, Willacy, 2306.
Portable stand pipe for watering, Clarke, 2660.
Slop carts and waggons, Bayley, 3923.

Roasting cocoa. *See* "Cocoa."

Roasting coffee. *See* "Coffee."

Roasting ores. *See* "Smelting."

Roasting-jacks. *See* "Cooking."

Rock drilling. *See* "Boring rock."

Rockets:

Life-saving, with self-igniting light, Silas, 1218.
Self-igniting signal shells attached to, Holmes, 1324.
For signalling by the "Clapptograph" code, Clapp, 1959.
Shooting, by rebound of springs, Stephens, 2744.
For signalling at sea and on land, Rogers, 3113.

Rocks (sunken):

Pontoons for removing, Darley, 3782.

Roller blinds. *See* "Window-blinds."

Roller skates. *See* "Skates."

Rollers and cylinders. *See* "Cylinders."

Rollers (road). *See* "Road making."

Rolling bodies or substances other than metal:

Power racks for driving rolls, Dyson, 122.

Rolling metals:

Wheel tyres, Parker, 7.
Rods, bars, plates, blooms, &c.; actuating rolls, Dyson, 122.
Railway axles, Sykes and others, 145.
Opening or separating iron black plates, Davies, 413.
Tubes and tubing, Newton (*Wilbur*), 441.
Combined cast iron and steel rolls for, Lauth (*Sloath*), 548.
Armour plates, Johnson (*Marrel Bros.*), 663.
Corrugated cylinders, Lafferty & Lafferty, 754.
Channelled or honey-combed, Hunt (*Sibul*), 887.
Hoops with holding teeth for casks and bales, Bradshaw, 872.
Carriages employed in lace making, Jardine, 902.
Making true the rollers in, Bury & Muir, 1154.
Tubes or rods, Hayden, 1212.
Steel wire, Fox, 1485.
Steel rails and girders, Fox, 1486.
Producing shovel blades, &c., Curtis (*Mac Martin*), 1394.
Bars for bolt and spike blanks, Scattergood & Wilkes, 1497.
Drawing bent tubes and stench traps, Tongue (*Butler*), 1926.
Or forming spikes already headed, Lake (*Tay*), 2075.
Iron and steel wire rods, &c., Stanford & Bott, 2153.
Flat bars, small rods & wire, from old rails, Dyson & Ward, 2182.
Frame-work for and "three high system" of, Whitham, 2253.
Bale hoops, Bradshaw, 2329.
Bars of nut iron for nut blanks, Scattergood & Wilkes, 2346.
Applying hot-neck grease to journals of rolls, Key, 2350.
Spiral springs, Braun, 2356.
Faggots or bars, Lake (*Tibbits & Weaver*), 2368.
Wrought metal boiler and other tubes, Moore, 2427.
Piling steel and iron for rails, angle iron, &c., Griffiths, 2546.
Solid guttered sash-bars or rafters, Hyatt, 2550.
Tie or bottom flange of rafters, joists, beams, &c., Hyatt, 2550.
Bending bars, &c. & removing same from rolls, Robinson, 2719.
Bending and "forming" links, Gray & Taylor (*Seldom*), 2722.
Bars of irregular form for horse-shoes, &c., Miller & Rame, 2904.
Fashioning strips for cut nails, Danks & Walker, 2960.
Corrugating bottom plates for fenders, &c., Crawford, 3273.
Chilled rolls for planishing and, Marston, 3406.
Skelps for and lap welded iron and other tubes, Munts, 3411.
And welding iron and steel tubes, Huggins, 3462.
Housing, arranging and working rolls, Brown, 3540.
Rails, girders, bars and plates or sheets, Brown, 3540.
Sleepers for railways and tramways, Livesey, 3667.
Casting chilled rolls, Taylor & Farley, 3760.
Copper singe plates, Sumner & Waldenström, 3812.
Blanks for screw nuts, Taylor & others, 3864.
Curving electrotype printing plates, Loftin & others, 4169.
Soft steel bars for horse nails, Huggett, 4181.
Seamless tubing and hollow articles, Newton (*Brooks*), 4244.
Sheet metal for cask making, Haycraft, 4478.

Roman cement. *See* "Cement."

Roofs; roofings:

Asbestos fireproof pasteboard for, Hyatt, 478.
Fireproofing and making illuminating, Hyatt, 783.
Cement for preserving, Tugwood, 963.
Paper and ligneous tissues for, Murrow, 1063.
Material for and mode of making, Brannon, 1246.
Bricks with projections & recesses for, Abel (*Jeakes*), 1639.
Constructing and fireproofing, Hyatt, 1715.
Compound material for and constructing, Brannon, 2128.
Constructing wooden arched framings for, Lascelles, 2250.
Cement or plastic for roofings, O'Friel, 2500.

**Roofs; roofings—*cont.***
Constructing and fireproofing, Hyatt, 2550.
Economising slates in covering, Parker, 2851.
Asphaltic fabric for, Gedge (*Goudefroy*), 2732.
Making glass with crimps for, Hyatt, 2752.
Constructing concrete, Payne, 2786.
Making and securing ridging to, Mcakin, 2839.
Compound material for ("mica," &c.), Talling & Secombe, 3048.
Illuminating roofs, Hyatt, 3171.
Mastic of asphalte for, Skinner, 3217.
Combining, &c. wooden strips for forming, Plimpton, 3508.
Wooden linings for metal or other, Plimpton, 3508.
Uniting asphalte, cement, plaster, &c. for, Macleod, 3994.
For arcades, Inghels, 4232.

**Root crops (thinning).** *See* "Tilling."

**Root-pulpers:**
Barrel and disc, Bentall, 726.
Hollow drum with cutting edges, Topham, 1146.
Mounting and fixing pulping knives, Hempsted, 1639.
Machine usable as a cutter, slicer or pulper, Hempsted, 1639.
Working, by means of seed distributors, &c., Willacy, 2306.
Adapting chaff-cutters for cutting turnips, Edwards, 3617.
Cutters for either slicing or pulping, Edwards, 3617.

**Roots (digging).** *See* "Digging roots."

**Rope porters.** *See* "Tilling."

**Ropes; cord; twine; string:**
Dressing for preserving, Johnson (*Cambon & Co.*), 18.
Twisting apparatus, Truman, 124.
Of asbestos, Hyatt, 478.
Friction buckles for cordage, Dethiou, 542.
Preparing twines, Connor, 612.
Waterproof mastic for coating, &c., Bageau, 649.
Twisting rope yarns, Dixon, 950.
Spinning paper-twine or cord, Lake (*Wortendyke*), 1068.
Asbestos twine for packings, Cleghorn & Paterson, 1145.
Producing rope yarn, Maigron, 1822.
Preparing jute, &c. for twine or cord, Waithman, 1991.
Slip buckle or link for, Clayton (*Owen*), 3050.
Adapting steel wire ropes for cables, &c., Bullivant, 3054.
Rope apparatus for cragsmen and alpine tourists, Hill, 3216.
Forming with wire cores for sash lines, &c., Mewis, 3481.
Cables of "nickelised" iron, Monckton, 3509.
Connecting and joining wire ropes for fences, Timmins, 3800.
Picking, carding and spinning cordage, Latour, 3948.
Spinning rope yarns, Whitehead, 4017.
Braiding machine for Venetian cords, James, 4261.
Knitting coverings for cords, Churchill (*Tiffany*), 4309.
Preparing & treating seaming and roping twines, Good, 4362.

**Roses and jets for syringes.** *See* "Syringes."

**Roughing horses.** *See* "Horse-shoes."

**Roving frames.** *See* "Spinning (twisting)."

**Rudders.** *See* "Steering."

**Ruffles.** *See* "Trimmings."

**Rugs:**
Wadding for travelling, Mortimer & Sykes, 888.
Hearth or "beam," Smith, 1386.
Treating reversible fabrics for hearth, Wilkinson, 4096.

**Ruling machines; ruling paper:**
Automatic arrangement for raising pens in, Cooke, 1346.
By means of circular discs, plates or rollers, Price, 2853.
Taking-off apparatus for, Dunn, 3906.

## S.

**Saccharine solutions.** *See* "Sugar."

**Sacking corn, seeds, and salts.** *See* "Bags."

**Sacks.** *See* "Bags."

**Saddle boilers.** *See* "Boilers."

**Saddlery.** *See* "Harness."

**Safes and strong rooms:**
Constructing fire-proof, Chubb & Chalk, 320.
Asbestos packing for doors of fire-proof, Hyatt, 478.
Fire and burglar proof and locks, Goster, 552.
Combination-lock for, Worrell, 642.

**Safes and strong rooms—*cont.***
Combination lock and seal for, Clarke, 818.
Composition for covering, Muratori, 951.
Fire-proofing, Taylor & others, 1331.
Automatic fire extinguisher for, Wallace & Tucker, 1487.
Compound for and constructing ships', Brannon, 2028.
Constructing of artificial fibrous stone, Brannon, 2029.
Fire cement casings for metallic, Brannon, 2029.
Compound material for and constructing, Brannon, 2128.
Protective fireproof covering, Jensen (*Meidell*), 2523.
Non-conductor for excluding heat from, Peacock, 2833.
Locks for, to resist the action of acids, Talbot, 3647.
Iron safes, strong room doors and locks, Chubb & others, 4393.

**Safes (provision):**
Cooling, Harrison, 1244.
Compound material for and mode of making, Brannon, 2027.
Compound for and constructing ships', Brannon, 2028.
Non-conductor for excluding heat from, Peacock, 2833.
Constructing and submerging in water, Roby, 3920.

**Safety pockets.** *See* "Wearing-apparel."

**Sails for ships.** *See* "Ships' sails."

**Salicylic acid.** *See* "Acids."

**Salt:**
Furnaces for brine evaporating pans, Dearman, 397.
Using hydrochloric acid in producing common, Bale, 521.
Heating evaporating pans, Jensen (*Ericksen & Maardt*), 1072.
Pans, Willoughby & others, 1126.
Devices for evaporating in making, Lake (*Renshow*), 1300.
Circular or rotating furnaces and pans, Barrow, 3139.
Cutting or slicing, crushing and sacking, Barrow, 3139.

**Salt cake.** *See* "Alkalies."

**Saltpetre or nitrate of potassa.** *See* "Alkalies."

**Salvage (ships').** *See* "Ships' cargoes."

**Salvers.** *See* "Trays."

**Samples:**
Placing in tablets, books, &c., Smethurst, 2715.
Exhibiting, of pens, &c. in boxes, Leonardt & Hewitt, 2855.
Postal sample bags and envelopes, Baronio, 4319.

**Sand:**
Hardening, for various purposes, Macintosh, 2945.
Press for moulding and compressing bricks of, Wood, 3925.

**Sand banks and bars (removing).** *See* "Dredging."

**Sand (drying).** *See* "Drying."

**Sanding roads.** *See* "Roads (cleansing)."

**Sanitary powders.** *See* "Disinfecting."

**Saponifying greasy or fatty matters.** *See* "Soap."

**Sashes.** *See* "Windows."

**Satchels.** *See* "Bags."

**Saucepans.** *See* "Cooking."

**Save-alls for candlesticks.** *See* "Candles."

**Sawing.** *See* "Cutting."

**Saws:**
Grinding and polishing, Wilde, 348.
Circular bench for, Stanley, 411.
Setting diamonds or carbon in diamond saws, Terrey, 563.
Tempering, &c., Morgan-Brown (*Simonds & Ferson*), 1282.
For sawing rock, stone and coal, Macintosh, 1714.
Teeth of reciprocating, Kirkland & Anderson, 1977.
Making cast steel, Johnson, 2094.
Tempering and forming, Simonds & Ferson, 2099.
And handles and attaching same, Johnson (*Disston*), 2412.
Hardening teeth of, Macintosh, 2945.
Folding frames for frame, Schlesinger (*Perard*), 3049.
Grinding and gulletting saw teeth, Harrison, 3218.
Combined saw and knife for cutting wood, Krueger, 3765.
Circular bench for, Hilton, 3872.
Circular saw benches, Haigh, 4210.
Oven for tempering, Jensen (*Simonds & Ferson*), 4332.

**Scaffolding.** *See* "Buildings."

**Scales and scale beams.** *See* "Weighing."

**Scarf pins and rings.** *See* "Jewellery."

**Scarifiers.** *See* "Tilling."

**Scaring or frightening birds:**
Automatic repeating fire-arm for, Humbert & Joy, 1400.
Self-acting sound alarm for, from lands & gardens, Duke, 3987.

**Scents and perfumes:**
Ozonising, Monckton, 265.
Distilling, Piver, 634.
Vaseline, for preserving, Chesebrough (*Chesebrough*), 1012.
Crystal handles of umbrellas, &c. as a bottle for, Jones, 1582.
Distilling in vacuo, Harris (*Walton & others*), 2053.
Scent fountains for amusement, Fellows, 2653.
Filling bottles with perfumes, Clark (*Sherwood*), 3097.
Machine for mixing, with soap, Morgan-Brown (*Fisch*), 3732.
Vessel for delivering scent, Jacobsohn, 3975.
Distributing or spraying, Plessner, 4151.

**School desks and seats.** *See* "Furniture."

**Scissors.** *See* "Shears."

**Scoops:**
Combined graduated colanders and, Haseltine (*Baker*), 2289.

**Scoops or shovels.** *See* "Spades."

**Scoria (utilising).** *See* "Slag."

**Scotch caps or bonnets.** *See* "Hats."

**Scouring fabrics, fibres, &c.** *See* "Washing."

**Scrap iron.** *See* "Metal waste."

**Scrapers:**
Multiple tool, Baille, 603.
For removing meal from squeezing rolls, Palmer (*Wegmann*), [823.
For cleaning steam-boilers, Johnson (*Sommer*), 1069.
For cleaning water heating pipes, Mason & Alcock, 1436.
For cleaning steam-boiler shells, Fryer, 1774.

**Screens:**
Material for making fire-proof, Brannon, 2128.
Of "nickelised" iron, Monckton, 3509.
Treating reversible fabrics for fire, Wilkinson, 4026.

**Screens; screening.** *See* "Sifting."

**Screw gill-boxes.** *See* "Spinning."

**Screw-drivers:**
Combined wrench and, Griffin (*Austin*), 219.
Multiple tool, Baille, 603.
For screws with recessed heads, Druce & Steers, 1537.
For screwing heels to boots and shoes, Lion, 2517.
Combined turn screw, railway key, knife, pen, &c., Wigg, 2578.

**Screw-propellers.** *See* "Propelling ships."

**Screw-wrenches.** *See* "Wrenches."

**Screws; screw-stocks:**
Cutting, sizeing and shaping, Tallcott (*Post*), 148.
Feed mechanism, in making, Tallcott (*Post*), 148.
For packing cases, Loewensohn, 162.
Cutting threads on, Nugent & Fanning, 191.
Shaving and nicking screw blanks, Nugent & Fanning, 191.
Cutting screw threads on pipes, Clark (*Allin*), 350.
Covering heads of iron screws with brass, &c., Hookham, 832.
Casting water-meter screws, Haseltine (*Read*), 1223.
Lathe tool for cutting, Bonneville (*Baville*), 1231.
Cutting wire for boots, Lake (*Mundell & Partridge*), 1233.
For horse-shoes, handles, machinery, &c., Fryer & Hodgson, 1258.
With recessed heads instead of nicks, Druce & Steers, 1537.
Cutting female screws in wood or metal, Dart, 1611.
Tapping or screwing mains under pressure, Schanzer, 1929.
Threading earthenware bottles and jars, Buchan, 2180.
Moulding vulcanite and similar screws, Roberts, 2199.
Cutting and oiling dies, Johnson (*Sellers*), 2459.
Heading, with brass, copper, &c., Stokes & Stokes, 2668.
Cutting threads on, Conradi (*Sack*), 2979.
Screw stocks and vice for holding article, Grindrod, 3018.
Of "nickelised" iron, Monckton, 3509.
Cutting screw threads on pipes, rods, &c., Clark (*Frost*), 3620.
Cutting vulcanite, for liquid meters, Greenacre, 3672.
Screw stock, Gedge (*Schmitz*), 3868.
Lathe or machine tool for cutting, Reid & Webster, 4000.
Screw taps, Murdoch (*Lietar & Dupuis*), 4271.
Tapping nuts and bolts, Hartnell, 4276.
Universal chuck for screwing machines, Lee, 4280.

**Scribbling-engines.** *See* "Spinning (carding)."

**Scrolls.** *See* "Patterns."

**Scudding hides and skins.** *See* "Leather."

**Scufflers.** *See* "Tilling."

**Sculpture:**
Imitation marble statues, Deléon, 525.
Producing bas-reliefs or natural sculptures, Placet, 1867.
Using dried spent tan for statuary, Murdoch (*Honneig*), 2361.

**Scutching fibres.** *See* "Spinning (batting)."

**Scythes.** *See* "Reaping."

**Sealing letters and other enclosures:**
Igniting and melting wax for, Hall, 1050.
Pocket apparatus for sealing, &c., Lawrence & Lawrence, 3691.

**Seals for chains.** *See* "Jewellery."

**Seals for locks.** *See* "Locks."

**Sea-sickness (curing and preventing):**
Medicinal plaster for, Smith (*Audouit*), 297.
Constructing cots or berths to diminish, Haughton 2746.

**Seasoning timber.** *See* "Wood."

**Seats.** *See* "Furniture."

**Sea-walls.** *See* "Breakwaters."

**Sea-weed:**
Treating, in making sanitary powders, Hughan, 1968.
For use in "lichenised wadding," Lake (*Lelièvre*), 2149.

**Sectional cans.** *See* "Cans."

**Seed-drills.** *See* "Sowing."

**Seeds and grain (grinding).** *See* "Grinding."

**Seeds and grain (hulling).** *See* "Hulling."

**Seeds and grain (thrashing).** *See* "Thrashing."

**Seeds and grain (treating).** *See* "Grain."

**Seed-sowing.** *See* "Sowing."

**Semaphores.** *See* "Signals."

**Separating and sorting.** *See* "Sifting."

**Separating metals from ores.** *See* "Smelting."

**Servo-motors.** *See* "Governors."

**Sewage (treating).** *See* "Manure."

**Sewers.** *See* "Drains."

**Sewing and embroidering; sewing-machines:**
Shuttles, spools and bobbins, Becker, 9.
Simplifying working parts, &c.; actuating shuttle, Andrews, 95.
Embroidering and braiding, Gedge (*Corneig*), 107.
Joining or seaming bags or sacks, Cox, 115.
Double clutch mechanism for operating, Wright, 140.
Actuating shuttle, shuttle lifter, presser & take-up, Smith, 238
Actuating shuttle and needle bar, Lomax & Bradbury, 263.
Holding and operating shuttles, Sellers, 282.
Actuating shuttle and feeder, Harris & Judson, 304.
Sewing-machine cabinets, Clark (*Tracy & Lowton*), 363.
Preparing cap fronts, ruffles, &c. for, Hughes, 369.
Embroidering and ornamenting woven fabrics, Heaven, 446.
General construction of hook, Haseltine (*Beckwith*), 474.
General construction of shuttle, Webb (*Walker*), 511.
Tension arrangement for shuttles, Vosper, 548.
Shuttles and reels, Griffiths, 602.
Working feed mechanism in boot machines, Keats & others, 639.
Wet and untanned hides, &c., Baker, 668.
Feeding, turning material, graduating stitches, Singer, 694.
Button hole stitching attachments for, Cooke (*Cooke*), 708.
Actuating needle and shuttle, Pearson & Pearson, 716.
Fringing machines, Collins, 789.
Taylor machine, friction gear, Salamon (*Lippman & Lind*), 795.
Double clutch mechanism for operating, Wright, 877.
Book sewing-machine, Tongue (*Thompson*), 1069.
Combined fringing and sewing-machine, Davies & Lees, 1042.
Revolving looper for chain stitches, Davies & Lees, 1042.
Leather with metallic thread, Clark (*Bourdais*), 1068.
Actuating needle bar, Groubman, 1178.
Plain sewing and button hole stitching, Vosper, 1184.
Embroidery attachments, Newton (*Roes*), 1186.
Feed-motion and "take-up" device, Chapman & Sutton, 1251.

**Sewing and embroidering—*cont.***

Needles, James (*Trabue*), 1294.
Trimmings on dress skirts, &c., Badcock, 1352.
Attachments; operating & oiling, Bishop (*Bishop & Hall*), 1527.
Shuttles and carriers, Taylor (*Dreyer & Schipmann*), 1575.
Feed motions, Smyth, 1633.
Shuttle & feed motion; winding reels or spools, Elliott, 1635.
Oscillating steam-engine for driving, Herring, 1641.
With a single needle and two upper threads, Curtis, 1660.
General construction and needles for, Curtis, 1660.
Actuating shuttle and four-motion-feed for, Asten, 1686.
Cam, feed motion, shuttle & winder, Kight & Mohrstadt, 1710.
Feed, needle bar and shuttle tension, Bradbury & others, 1823.
For straw-braided and other fabrics, Hughes (*Baldwin*), 1867.
Clamps for holding fabrics while sewing, Price & Warn, 1986.
Tension mechanism; securing bobbins; spools, Becker, 2066.
Soles on boots and shoes, Jackson, 2081.
Attaching clockwork, &c. to, for driving, Colborne, 2107.
Cording or ruffling attachment, Haseltine (*Thompson*), 2108.
Carrying and actuating shuttles, Lomax, 2163.
Thread controlling and tension apparatus, Lomax, 2163.
Feed-motion and tension apparatus, Sarkissian, 2165.
Transmitting motive-power to, Bourdin, 2232.
Retaining shuttle holder, Browning, 2247.
Water-motor for driving, Kunstädter, 2318.
Spool winding mechanism, Parkinson, 2331.
Air-engine for driving, Stevens (*Laubereau*), 2364.
Track or traverser frame, Morgan-Brown (*Dinsmore*), 2383.
Stretching device for, Morgan-Brown (*Dinsmore*), 2383.
Fabrics in a straight line, Morgan-Brown (*Dinsmore*), 2383.
Boots and shoes, Mills (*Goodyear*), 2414.
Feed mechanism of quilting machines, Morrell & others, 2416.
Feed reversing device, Wanzer (*McCune*), 2420.
Tucker attachment, Barrett (*Barrett*), 2426.
Presser foot and "take up" mechanism, Smith, 2511.
Shuttle, shuttle lifter and feed motion, Smith, 2511.
Using two needles in, Hook, 2544.
Hooks for threading machine needles, Fobes (*Wells*), 2561.
Embroidery or bordering on skirts, &c., Barnard, 2582.
Shuttle machines, Daville (*Webster & Webster*), 2647.
Feed attachment for ornamental, Byron (*Merrill*), 2750.
Embroidering apparatus for, Newton (*Ramsay*), 2767.
Constructing chain stitch, Beecroft, 2818.
Running stitch & multiplex, Haseltine (*Hahn & Pieper*), 2832.
Shuttle carrier; looper, and working same, Clark (*Hayes & Lathrop*), 2835.
Spring or weight mechanism for driving, Pierce & Hutton, 2871.
Plaiting attachment for, Johnson (*Chamberlain*), 2873.
Shuttle machines, treadles, and table for same, Jones, 2889.
Spring and lever motive-power for driving, White, 2892.
Double clutch mechanism for operating, Wright, 2903.
Needle and needle-bar of chain stitch machines, Wilson, 2948.
Starting mechanism worked by the foot, Grillone, 2955.
Pentegraph embroidery machines, Easton & others, 2958.
Shuttles for embroidery machines, Easton & others, 2958.
Spiral needle, for stitching sacks, carpets, &c., Garland, 3043.
Actuating needle, shuttle & feed; needle clamp, Guinness, 3044.
Gathering or frilling attachment, Massie (*Kellogg*), 3079.
Tucker attachment for, Massie (*Kellogg*), 3081.
Embroidering woven and felted fabrics, Rigby, 3140.
Spring mechanism for driving, Smith (*Proctor*), 3151.
Button hole stitching device for, Atwood (*Townsend*), 3183.
Actuating needle, feed bows and hook, Mountain, 3253.
Waxed thread shuttle machines, Thomas, 3262.
Folding attachment, Jensen (*Hamburg-American Sewing-Machine Co.*), 3291.
Spring mechanism for driving, Gedge (*Redon & Co.*), 3376.
Embroidery attachments, Newton (*Rose*), 3380.
Embroidering tulle, &c., Clark (*Michalet & Bourget*), 3401.
Spiral stitch or "overhead" sewing-machines, Laing, 3403.
Of "nickelised" iron, and driving same, Monckton, 3509.
Preventing driving in wrong direction, Warwick, 3513.
Winding spools without turning machine, Warwick, 3513.
Sewing selvaged hosiery or knitted fabrics, Guivet, 3572.
General construction of shuttle, Robinson, 3774.
Attachment, for sewing boots and shoes, Lake (*Ballou & Copeland*), 3886.
Adapting ball wound thread for hand or machine, Spiers, 3915.
Darning stockings, Curtis (*Hosmer*), 3941.
Double clutch mechanism for operating, Wright, 3958.
For forming zigzag stitches, Newton (*Singer Manfg. Co.*), 3983.
Self-acting stop for driving wheel, Bishop (*Bishop*), 4101.
Button hole feeding device, Newton (*McCloskey & Folk*), 4128.
Lock stitch button hole, &c., Newton (*McCloskey & Folk*), 4128.
Machine for darning stockings, cloths, &c., Turner, 4139.
Actuating & timing shuttle carrier & needle bar, Lomax, 4205.
Regulating supply of thread to needle, Lomax, 4205.
For sewing beads, &c. on fabrics, &c., Johnson (*Salomons*), 4216.
Spiral needle for, sacks, carpets, &c., Garland & Gove, 4225.
Running or gathering device for sacks, &c., Gove, 4226.
Feed mechanism, adjustable presser and guides, Bland, 4241.
For straw hats, bonnets, frilled work, &c., Bland, 4241.
Spring motors for propelling or driving, Jenkins, 4303.
Embroidering machines, Heaven, 4336.
Producing button hole stitch, Heaven, 4336.
Thread controller, adjusting presser foot of, Wilson, 4396.

**Sewing and embroidering—*cont.***

Arranging base or stand and driving gear of, Wilson, 4396.
Self-acting plaiting attachment for, Wilson, 4396.
Embroidery transfer pattern papers, Briggs & others, 4471.

**Shackles.** *See* "Links."

**Shadow sails.** *See* "Ships' sails."

**Shafts and shafting for machinery:**

Composition for bearings, Colné, 37.
Screws for iron collars for, Fryer & Hodgson, 1258.
Ball-bearings for, Wirth (*Kleinpell & Dramburg*), 2206.
Arranging, for steering propellers, Hughes (*Mallory*), 2277.
Setting up and oiling mill shafting, Barber (*Crane*), 2342.
Repairing the "sweep" of loom crank shafts, Haggas, 2442.
Examining or testing, Handyside & Alley, 2455.
Couplings for shafting, Brehmer, 2665.
Turning journals of, at one operation, Atock, 2716.
Coupling for plate bending machine, Robinson, 2718.
Arranging marine-engine, Spartali, 2900.
Adjusting, of rotary sole cutters, Atwood (*Townsend*), 3013.
Forging propeller shafts, Whitworth, 3064.
Lubricators for revolving, Kaposi (*Klosak*), 3341.
Of "nickelised" iron, Monckton, 3509.
Arranging screw shafting in ships, Wimshurst & Reed, 3625.
Coupling for, running at variable speeds, Mégy & others, 3656.
Couplings for revolving, Russell, 3907.
Lubricator for shafting, Jacobsohn, 3975.
Lathe for turning, Barthel (*Koch & Mueller*), 3979.
Globe gear or universal joint for coupling, Small, 4159.
Removing dead centres in crank shafts, Davison, 4164.
Couplings for uniting and repairing, Tongue (*Stuart*), 4223.
Seamless hollow shafts, Newton (*Brooks*), 4244.
Repairing driving shafts, Tongue (*Devriès*), 4361.

**Shafts for ventilating.** *See* "Ventilating."

**Shafts or columns.** *See* "Columns."

**Shake willeys.** *See* "Spinning (batting)."

**Shaking linen yarns.** *See* "Threads."

**Shakos and hats.** *See* "Hats."

**Shale and coal (cutting & hauling).** *See* "Mining."

**Shale oil.** *See* "Oils (mineral)."

**Shampooing.** *See* "Hair-dressing."

**Sharpening,** *See* "Grinding and sharpening."

**Shaving.** *See* "Hair-dressing."

**Shaving skins.** *See* "Leather."

**Shawls and mantles:**

Making Indian, on lace machines, Sival, 218.
Securing shawl pins, Perks, 550.
Clasping pin for, Armstrong, 666.
Twisting fringe on shawls, Brooks, 727.
Fringing shawls, Collins, 789.
Weaving Paisley, Sowden & Stephenson, 863.
Weaving, Shaw & others, 1462.
Embroidering mantles, Rigby, 3140.

**Shearing metals.** *See* "Cutting metals."

**Shears; clippers; scissors; shearing and clipping:**

Clipping horses and other animals, Norman, 169.
For cutting bars or rods of iron, Newton (*Stevens*), 418.
Horse clippers, Brown, 715.
Increasing power in shears, Kennedy, 860.
Sheep shears, Henderson (*Picot*), 861.
Sheep shears, Haseltine (*Brown & Fulton*), 1054.
Shearing sheep and other animals, Courtois, 1609.
Making cast steel sheep shears, Johnson, 2094.
Reducing friction in shears and clippers, Holland, 2114.
Clipping or shearing animals, Martin, 2236.
Horse clippers and sheep shears, Clark, 2373.
Clipping or shearing animals, Martin, 2538.
Clipping or shearing animals, Martin, 2635.
Fixed pressure plate for horse clips, Couhault, 2764.
Shearing sheep, &c., Bossert (*Holder & Stotz*), 3024.
Scissors of "nickelised" iron, Monckton, 3509.
Sheep shears, Woolhouse, 3764.
Apparatus for removing hair, &c. from animals, Monks, 3834.
Clipping machine for horses, &c., Small, 4159.

**Sheathing:**

Of paper pulp, sponge, &c., Lake (*Kendall*), 701.
Illuminating, for roofs, Hyatt, 783.
Panels of waterproof tissues for, Murrow, 1063.
Constructing, for ships, Hyatt, 3171.

Sheaves. *See* "Pulleys."

Sheds for drying. *See* "Drying."

Sheep-shears. *See* "Shears."

Sheep-smears. *See* "Medical treatment."

Shell and other projectiles. *See* "Shot."

Shell-fish crackers. *See* "Lobster crackers."

Shelter for pavements. *See* "Buildings."

Shelves:

Applying japanned metals as a covering for, Hughes, 2593.

Shingling metals. *See* "Forging."

Ship and boat building:

Apparatus to descend over ships' sides, Leon, 8.
Self-acting safety cleats, Cruickshank, 89.
Windows & additions thereto, Gedge (*Bradley Window Co.*), 91.
Rolling armour plates, &c., Dyson, 122.
Light-draught screw-propelled vessels, Thornycroft, 382.
Dividing bottom longitudinally into sections, Coppin, 402.
Lengthening the after hulls of vessels, Middleton, 409.
Corrugated hulls to lessen rolling, Page, 470.
Substituting locomotives for marine engines, Page, 470.
Filters for ships' tanks, Atkins, 506.
Friction buckles for cables, Dethiou, 542.
Preventing cargo shifting, Clark (*Lo Forte & Quintarelli*), 593.
Fenders and protectors for, Bonneville (*Wacker & Boll*), 647.
Ice-breaker ships, Brewer (*Weedermann & Sons*), 660.
Armour plates, Johnson (*Marrel Bros.*), 663.
Glasses for illuminating decks, Hyatt, 783.
Forging metal blanks used in, Ashbury, 898.
Fireproofing, Salomons, 910.
Fireproofing composition for, Muratori, 931.
Panels of waterproof tissues for, Murrow, 1063.
Berths, mess-tables and seats, Dewar, 1105.
Elliptical "life-buoy boats," Holmes, 1370.
With longitudinal frames, Buckland & Simpson, 1379.
Using space between skins for condensing, Buckland & Simpson, 1379.
Rivetting apparatus used in, Purdie, 1427.
Lengthening the after hulls of vessels, Middleton, 1470.
Preserving armour plating, Ara & Del-Bubba, 1595.
Cleats and chocks, Gibson (*Brown*), 1695.
Fireproof lights, Hyatt, 1715.
Cutting metal plates for, Dawes & Holt, 1726.
Protecting ships of war, Allen & Fitzpatrick, 1737.
War ships, rams, boats, barges & other vessels, Parlour, 1777.
Covering for ships' decks, Hawksworth, 1968.
Double hulled or compound vessels, Dicey, 1976.
Material for constructing, fire-proofing, &c., Brannon, 2028.
Material for constructing fittings of, Brannon, 2028.
Protecting inner surfaces from corrosion, Thomson, 2044.
Safety cabin and preventing same rolling, Scott, 2290.
Fire detectors and indicators for ships, Lewthwaite, 2313.
Forming hatchways to facilitate loading, Price, 2465.
Neutralising rolling action of ships, McNaught, 2482.
Cement or plastic for lining iron ships, O'Friel, 2500.
Opening & closing bulkhead, &c. doors in ships, Coxhead, 2655.
Applying buoyant chambers to boat sides, Key, 2685.
Awnings or coverings for steam-boats, Smith, 2720.
Couches, hammocks and cots or berths, Haughton, 2743.
Making glasses for deck-lights, Hyatt, 2752.
Ventilating flue mouths for berths, Roberts, 2843.
Ironclad or "citadel" and composite ships, Rosoman, 2844.
India-rubber sheets for lining, Thomson & Watson, 2913.
Plate calking tool, Holroyde (*Connery & Holroyde*), 2932.
With a suspended watertight compartment, Noad, 2934.
Controlling motion of berths, &c., Morgan-Brown (*Ford*), 2972.
With chambers for passage of water, Blake & Tompkins, 3169.
Sky, hatch, dead, deck, cabin, and port lights, Hyatt, 3171.
Hoods, bulk-heads and deck settees, Hyatt, 3171.
Rolling "fenders" for vessels, De Lara & Sewell, 3266.
Ring shaped or rotating hawse holes, Clark, 3268.
Governing the motion of saloons, &c. in, Bessemer, 3274.
War ships, &c. to facilitate propulsion, Cook, 3371.
Berths or sleeping compartments, Johnson, 3443.
Hulls for generating electricity, Monckton, 3509.
Ships' fittings of "nickelised" iron, Monckton, 3509.
Controlling motion of "Bessemer saloons," &c., Gray, 3552.
Fenders or fendoffs for vessels, Cattarus, 3590.
Arranging propelling machinery in, Wimshurst & Reed, 3625.
Screw steam barges, &c. for towing on canals, &c., Byrne, 3637.
Canal boat for carrying gunpowder, &c., Macklin & Moore, 3733.
Steadying discharging hulks and light ships, Hodgson, 3734.
Hulls of dredgers, Barns and others, 3789.
Picking, &c. cordage for calking ships, Latour, 3948.
Hanging & counterweighting saloon windows, Whiteway, 4008.
Forming rivets for, Purdie, 4067.
Controlling motion in, Morgan-Brown (*Ford & Dick*), 4104.
Suspending berths, &c. in, Morgan-Brown (*Ford & Dick*), 4104.

Ship and boat building—*cont.*

Saloons and floors for same, Bessemer, 4268.
Controlling and locking gear for saloons of, Bessemer, 4268.
Rails or bulwarks serving as rafts, Mead (*Newbery*), 4409.
Deck lights, Newton (*Foley & others*), 4445.
Working ships' turrets, Anderson, 4469.

Ships' boats:

Buoying and ballasting, Abbott, 12.
Automatic break in lowering, Johnson (*Hart*), 358.
Arresting apparatus in lowering, Smith, 452.
Providing with an inner cradle, Crowley & Blaiberg, 541.
Engaging, raising, lowering & disengaging, Barr & Barr, 2[illegible].
Davits, tackle and gear for lowering, &c., Absalom, 2[illegible].
Slip buckles or links for lowering, Clayton (*Owen*), 3[illegible].
Lowering and detaching apparatus, Blake & Tompkins, 3[illegible].
Catch and slip hook and block for lowering, Rogers, 3[illegible].
Air bag or girdle for surrounding, Count de Liancourt, [illegible].
Self-disconnecting hook for use in lowering, Enright, [illegible].
Raising & lowering steam launches, &c. "end on," Heilky, [illegible].
Friction pulley blocks for lowering, Wethered, 4446.

Ships' bottoms (coating, preserving and sheathing):

Composition for protecting surfaces, Heywood, 214.
Anti-fouling and protective composition for, Blair, 235.
Compositions for protecting, Monckton, 265.
Anti-fouling compound for, Nangle, 557.
Cement for preserving, Tugwood, 983.
Panels of waterproof tissues for, Murrow, 1063.
Anti-fouling composition or paint for, Jones & Howatson, [illegible].
Compound material for sheathing, Brannon, 2028.
Varnish or coating for, Conybeare & Naphegyi, 2106.
Composition for ("Prophylactic"), Burrell, 2246.
Applying japanned metals to, Hughes, 2593.
Compound india-rubber sheets for, Thomson & Watson, 2913.
Sheathing for, Hyatt, 3171.
Preserving by electricity, Monckton, 3509.
Varnishes and compositions for, Zingler, 3758.
Composition for, Younghusband & others, 4079.

Ships' cargoes (loading; unloading; raising salvage):

Portable apparatus for, Poulsom, 53.
Grain, by a current of air, Render, 535.
Trans-shipping coal, &c., Turton & Latham, 690.
Self-trimming apparatus, for coal, grain, &c., Kerr, 989.
Constructing hatchways and fitting shoots for, Price, 2465.
Pontoons for raising, from wrecks, Darley, 2782.
Vessels for raising salvage from wrecks, Noad, 2934.
Transferring loaded waggons on to barges, &c., Clark (*De*[illegible]
Loading barges and vessels with coal, Lake (*Upson*), [illegible].
Lowering weights in loading, Hill, 3216.
Raising from ships, transporting and lowering, Bray, 3[illegible].
Self-disconnecting hook for use in unloading, Enright, [illegible].
Portable apparatus for unloading, Poulsom, 4057.

Ships' closets. *See* "Water-closets."

Ships' compasses. *See* "Compasses."

Ships (extinguishing fire in). *See* "Fire-engines."

Ships' fenders. *See* "Ship-building."

Ships (heating or warming). *See* "Heating."

Ships (lighting). *See* "Lamps."

Ships' logs:

Substitute for, Robinson, 1416.
Speed indicator, Muirhead, 1909.

Ships' masts:

Fastening gaff hooks, Moultray, 1648.
Fitting masts and spars, Southwood, 3565.
Couplings for repairing iron, Tongue (*Stuart*), 4222.
Splints, &c. for repairing, Tongue (*Devries*), 4361.

Ships (propelling). *See* "Propelling ships."

Ships (raising, lowering and hauling off):

Pontoons for, Clark & Standfield, 111.
Pontoons for, Clark & Standfield, 202.
Hydraulic lifts for, Scott, 2502.
Vessels for raising bow or stern for repairs, Noad, 2934.
Vessels for floating grounded vessels, Noad, 2934.
Floating dock or pontoon for, Halpin, 4278.

Ships (raising sunken or wrecked):

By chains and hydro-pneumatic jacks, Browne (*Kaep*[illegible]
By compressed air or gas, Blaxland, 401.
Using an "air-lock" for gaining access to, Blaxland, [illegible]
By submerged air cylinders, Mills (*Rocco & Pentrier*, [illegible]

**Ships (raising sunken or wrecked)—*cont.***
Constructing and arranging pontoons for, Darley, 2782.
By vessels with suspended compartments, Noad, 2934.
Removing sand, &c. from, by suction apparatus, Bazin, 3694.
Grapnel and chain of air-bags for, Clark (*Toselli*), 4275.

**Ships' rigging:**
Catch and slip hook for, Rogers, 3301.
Wire shrouds of "nickelised" iron, Monckton, 3509.

**Ships' sails:**
Buckles for ropes for furling and unfurling, Dethiou, 542.
Applying, adapting and setting, Harvey & Pryer, 581.
Shadow sails for yachts, &c., Harvey & Pryer, 581.
Furling or unfurling, Ball, 1347.
Raising and lowering, Williams, 2133.
Setting and taking in, without going aloft, Southwood, 3565.
Waterproofing ships' canvas, Wilkinson, 4026.
Preparing, &c. seaming and roping twines for, Good, 4362.

**Ships' signals.** *See* "Signals."

**Ships (steering).** *See* "Steering."

**Ships (ventilating).** *See* "Ventilating ships."

**Shirts:**
Plaiting, creasing or folding shirt fronts, Rath, 295.
Means of keeping shirt fronts in position, Stephens, 369.
Shirt-front waistcoat, Palmer (*Delarue*), 736.
Combined front and collar of paper, Young, 3153.
Reversible overlapping front and wristbands, Holland, 3461.
Fitting on, removing and fastening fronts, Naylor, 3568.
Fastening false fronts to, Van Swyndregt, 3816.
Collars and fronts of muslin, &c., Hirschhorn (*Aub*), 3832.

**Shoeing horses.** *See* "Horse-shoes."

**Shoes and slippers.** *See* "Boots."

**Shooting rockets.** *See* "Rockets."

**Shot, shell and other projectiles:**
For rifled ordnance and to stop windage, Noble, 554.
Centring projectiles in guns, Lake (*Wiard*), 938.
Asbestos coverings for projectiles, Cleghorn & Paterson, 1145.
Shot-cartridges, Alexander (*Kay & Kay*), 1463.
Making and fixing bands or rings on, Vavasseur, 1521.
With expanding rings to cut off windage, Vavasseur, 1521.
Grooved bullets for smooth bore guns, Mac Leod, 2705.
For rifled ordnance, with expanding ring, Moffatt, 3288.
Utilising resistance of air in propelling, Cook, 3371.
Double bursting shell or shot, Gardner (*Broadwell*), 3399.
Strengthening the cases of, Johnson (*Gauthey*), 3822.
Cylindrical pointed, Pieri & Smith, 4073.

**Shovels.** *See* "Spades."

**Show-cards.** *See* "Advertising."

**Show-cases:**
Exhibiting jewellery, photographs, &c., Holtermann, 1697.

**Show-plates.** *See* "Sign-plates."

**Shrouds.** *See* "Ships' rigging."

**Shutters:**
Sliding window, Powell, 1254.
Bolts or catches for hinged, Turner, 1320.
Dispensing with lines, weights and pulleys, Cole, 1401.
Constructing and fireproofing ships', Brannon, 2028.
Compound material for making, Brannon, 2128.
Raising and lowering revolving, Williams, 2133.
Hanging, raising, lowering and securing, Cole, 2917.
Coiling, sliding and other, Hyatt, 3171.
Working, operating and oiling revolving, Todd & Wright, 3968.
Hanging and counterweighting, Whiteway, 4008.
Window guard or substitute for, Dickie, 4169.

**Shuttles used in sewing.** *See* "Sewing."

**Shuttles used in weaving.** *See* "Weaving."

**Sieves.** *See* "Sifting."

**Sifting and separating; screening:**
Flour, &c., Pindar & Pindar, 125.
Winnowing machines, Drechsler, 183.
Rice, Whalley, 222.
Cinders or ashes, Chippindale, 318.
Oily from farinaceous parts of maize, Clark (*Chiozza*), 490.
Flour, Palmer & Hopkinson, 573.
Middlings, Whitmore, 626.
Molten metal in cupola furnaces, Stone, 714.

**Sifting and separating; screening—*cont.***
Coal and ores, Taylor, 889.
Grain, &c. by passing through water, Notara, 890.
Crushed ores of different specific gravities, Krom, 1058.
Potters' clay or other plastic material, Boulton, 1119.
Grain, seeds, flour and middlings, Childs, 1455.
Self-cleaning screens for corn, grain and seed, Prentice, 1498.
Separating flour or meal from bran, McNally, 1518.
Meal, pollard and other substances, Staniar, 1859.
Substances of different specific gravities, Edwards, 1861.
Rotary screens for grain, Rainforth & Rainforth, 1882.
Purifying middlings, Lake (*Howes & others*), 1896.
Sifting arrangement for mill-stones, Aubin, 2184.
Cinder-sifters for ash-closets, Willett & others, 2189.
Graduated scoop and sifter, Haseltine (*Baker*), 2289
Stony substances from beans and wheat, Cluderay, 2372.
Riddles for thrashing machines, Tucker, 2542.
Coin assorter, Woodward, 2609.
Sand for grinding, &c. glass, Daglish & Daglish, 2652.
Cinder sifter for dry-closets and commodes, Bond, 2706.
Cleaning rotary screens, Brinsmead, 2730.
Cinder sifter, Hawkins, 2898.
Screening corn and seeds, Sainty, 2937.
Powdered iron ore for making iron and steel, Lyttle, 2984.
Screening coal while loading wagons, &c., Lake (*Upsom*), 3198.
Bolting flour, Lake (*Martin*), 3248.
Combined potato-digger, riddle and reaper, Christie, 3385.
Sieve taps, accessible for cleaning, Ainsworth, 3405.
Cinder sieve and rubbish screen for earth-closets, Green, 3413.
Cinder sifters for ash-closets, Walter, 3510.
Or vanning heavy ores or metals, Clark (*Frue*), 3556.
Forming wire screens, Chamberlain & Wagstaff, 3670.
Riddle for sifting or separating rice, Marsh, 3811.
Cleaning reels in dressing flour, Armstrong & Neill, 3861.
Sieves for purifying middlings; cleaning same, Young, 3940.
Assorter for nail machines, Imray (*Coyne*), 4116.
Grate bars for sifting out ashes, Lake (*Wiegand*), 4316.
Riddles for cleaning corn, Morgan-Brown (*Rose & Rose*), 4375.
Cinder sifters with rotating cylinders, Smith, 4447.

**Sights for fire-arms.** *See* "Fire-arms."

**Sign, door, window, show & address plates or tablets:**
Fixing copper in marble, &c. for, Hubmann, 825.
Enamelling number, address and other plates, Robinson, 1356.
Safety pin fastener for address plates, Pulvermacher, 2172.
Forming letters in name or show plates, Nall & others, 2637.
Placing samples in tablets for advertising, Smethurst, 2715.
Show tablet for advertising (Eutheatos), Trevisany, 2905.
Imitating vitro-enamel on show plates, Oliver, 3099.
Show cards or tablets in form of trays, &c., Brownlie, 3308.
Of "nickelised" iron, Monckton, 3509.
Lamp and reflector, to indicate street names, Parkman, 3832.
Indicating names of streets, &c. on lamps, Holness, 4140.

**Signal lamps and lanterns.** *See* "Lamps."

**Signals; communicating apparatus (miscellaneous):**
For steam-chests, Haseltine (*Jones & Pauly*), 35.
Water-level alarm for steam-boilers, Radford, 136.
Tell-tale for pressure gauges, Abel (*Redslob*), 168.
For tram-cars, Todd, 235.
Electro-magnetic fire-alarm, Finger, 298.
Mechanical bell warner for gas regulators, Hache (*Lévy*), 301.
In beaming warps, Condit (*Chapin*), 346.
Pneumatic telegraph for hotels, &c., Hopcraft, 372.
Domestic electric fire-alarm, Bonneville (*Joly*), 518.
In distilling essential oils or perfumes, Piver, 634.
Electric fire-alarm and call signals, Davies & Higgins, 640.
Electrical, Dodwell, 764.
Moving or setting by electricity, Browne (*Herlert*), 848.
Working signals by electricity, Bartholomew & Neale, 917.
For indicating removal of poison bottles, Clarke, 1034.
Pneumatic, for buildings, Clarke, 1071.
Electric fire and temperature alarms, Sparkes & Marsh, 1147.
Self-igniting signal light, Silas, 1218.
Thermostatic electric fire-alarm, Guest, 1225.
Transmitting telegraphic, Siemens (*Siemens*), 1307.
Self-igniting signal shells, Holmes, 1324.
Working semaphore, Haghe, 1367.
Electric light apparatus, Johnson (*De Meresanne*), 1446.
Electro-magnetic annunciators, Finger, 1779.
Alarm pressure gauges for boilers, Sauvée (*Déchamp*), 1917.
Adapting the "Clapptograph" code to, Clapp, 1950.
Low-water alarm for steam-boilers, Partridge, 2159.
Fire detectors or alarms and indicators, Lewthwaite, 2513.
For transmitting fire-alarms, &c., Davies & Higgins, 2478.
Mechanical bell warner for gas regulators, Hache, 2496.
Electric fire-alarm, Cole (*Klingelhoefer & Co.*), 2619.
Adapting convolute wire coils to signal bells, D'Humy, 2929.
Fire indicator and alarm, Trash, 2977.
For exploding torpedoes, Jensen (*La Cour*), 2999.
For tilling implements, Howard & Bousfield, 3080.
Rocket signal apparatus, Rogers, 3113.
Pneumatic, Canning & others, 3147.
Flash-light apparatus for, Punshon, 3200.

Signals, &c. (miscellaneous)—*cont.*

Electrical burglar alarms, Wright (*Howe*), 3311.
Electric house telegraph, Lake (*Lambrecht & Wippern*), 3351.
Alarum apparatus for wool washing tanks, Bryant, 3364.
Telegraphing by reflected light, Mance, 3390.
Setting alarm-clocks, Trotter, 3404.
Automatic electric fire and burglar alarms, Higgins, 3414.
Water-level alarm for steam-boilers, Lake (*Watson*), 3518.
In printing paper, Alissoff, 3528.
Electric bell apparatus for hotels, Jensen (*Wiman*), 3533.
Automatic fire-alarms, Hughes, 3538.
Controlling position of, Clark (*Lartigue*), 3771.
Signalling when millstones are exhausted, Render, 3837.
For water boshes, tymps and tuyeres, Jones & Thomson, 3857.
Indicating leakage from water tuyeres, Darby & Green, 3858.
Automatic fire-alarm and call bell, Johnson (*Baudry*), 3984.
Alarm for farm yards, plantations and preserves, Duke, 3987.
Self-acting burglar alarm, Duke, 3987.
Combined alarum and heating apparatus, Sharp, 4031.
For colleries, mines and underground works, Leech, 4148.
Alarms for fire extinguishers, &c., Hughes (*Parmelee*), 4288.
Electric bell apparatus for rooms, &c., Gent, 4300.
Pneumatic, and "sound projector," Cave, 4399.

Signals; communicating apparatus (railway):

In trains by compressed air, Steel & McInnes, 74.
Composition for colored lights, Johnson (*Lamarre*), 214.
Automatic electric, Whiteman, 270.
Interlocking levers of, Saxby, 294.
By levers near the rails and on the train, MacLean, 395.
Guard or safety, for points and switches, Marchant, 415.
Electric alarm and indicator for trains, Mackie, 440.
Electric break-away indicator for trains, Mackie, 440.
Holding and locking signal levers, Webb, 442.
Combining detonating cartridges with, Callender, 462.
Self-adjusting signal wires, Ledbrook & Mills, 487.
Holding and locking signal levers, Webb, 494.
Combining sound producers with signals, Dalzell, 560.
By levers near the rails and on the train, Clark & Hill, 564.
Propelling detonating signals on the rails, Needham, 583.
In trains by air tubes Ellison & Dargue, 590.
Automatic registering of signal levers, Wollaston, 596.
Recording signals sent and received, Wollaston, 596.
By adjustable platform between rails, Lowe & White, 636.
Electric sound, operated by train wheels, Price, 747.
Setting semaphore and working audible, Burn & Green, 774.
In trains, by exhaustion, Sanders (*Sanders*), 776.
Operating semaphore, Wise (*Wattson*), 829.
Time and explosive, burning colored fires, Empson, 835.
Automatic and sound, Entwistle, 859.
Automatic block system, Trainor, 892.
In trains by continuous tubes, Carpenter, 916.
Working signals by electricity, Bartholomew & Neale, 917.
Operating by compressed air, Prall, 979.
Electric telegraph for and means of working, Tyer, 1013.
Electro-magnetic train describer, Walker, 1026.
Combined audible and semaphore, Harrison, 1084.
Working, Halford & Bloomer, 1102.
Locking frame and levers for working, Stevens, 1125.
Automatic fog signal laying apparatus, Cullis, 1158.
Regulating and adjusting signal wires, Beynon, 1237.
Indicating progress of trains, Groubman, 1251.
Posts of cast iron tubes, Hood, 1306.
Running locks and cam rods of point levers, Bailey, 1330.
Working semaphore, Haghe, 1367.
In trains, Haghe, 1367.
Absolute block system, by electricity, Whyte, 1371.
Electric "train and road" apparatus for, Whyte, 1371.
Exhaust apparatus for working train, Sanders, 1523.
In trains by air tubes, Westinghouse, 1540.
Cord apparatus and indicator for trains, Pinkerton, 1568.
Counteracting expansion, &c. of rods or wires, Cowins, 1588.
Telegraphic apparatus for, Camp, 1684.
Automatic "block system" and fog signal laying, Barr, 1745.
Automatic sound, and working mechanism, Bell, 1802.
Working and locking signal levers, Cooper & Campin, 1893.
Working, and contraction and expansion gear for, Ford, 1894.
For engines on wrong track, Van der Mey (*Ansingh*), 1933.
Adapting the "Clapptograph" code to, Clapp, 1950.
Working pneumatically, Chambers, 2045.
Passenger and guard apparatus for carriages, Scott, 2290.
Interlocking levers for working, Spence, 2314.
Actuating, and interlocking same with points, Kelly, 2421.
Compensating for expansion, &c. of rods or wires, Kelly, 2421.
Working & controlling from a distance, Farmer & Tyer, 2423.
Locking signal levers, Stephens & Brooks, 2513.
Using side chains for signalling in trains, Winter, 2637.
Producing and transmitting audible, Johnson (*Gray*), 2646.
Apparatus for and working "block system," Currer, 2724.
Providing for expansion and contraction of pulls, Burns, 3028.
Working semaphores and triggers of audible, Burns, 3028.
Waterproofing fog signals, Jones, 3040.
Waterproofing fog signals, Jones, 3125.
Working and interlocking levers, Burn & Green, 3185.
Automatic light, sight and sound, Entwistle, 3201.
Suspenders or bearers for supporting rods, Entwistle, 3298.

Signals; communicating apparatus (railway)—*cont.*

Operating, by passing trains or engines, Wright, 3308.
Between a station and a train in progress, Kellow, 3370.
Coupling electric wires on trains, Goldstone & others, 3381.
In trains by electric currents, Goldstone & others, 3381.
Forming wire cores for communication cords, Mewis, 3481.
Working semaphore, Farmer, 3495.
Between trains en route to stations, &c., Salomons, 3515.
Electrical inter-communicating apparatus, Salomons, 3515.
Registering or marking signals, Salomons, 3515.
In trains by electricity, Preece & others, 3521.
Coupling electric wires on trains, Preece & others, 3521.
Working and locking signal levers, Farmer, 3569.
Electric "train and road apparatus," Whyte, 3722.
Warning drivers, &c. when carriages separate, Whyte, 3722.
Working semaphores of absolute block system, Whyte, 3722.
Operating disc or semaphore, by passing trains, Large, 3754.
For level crossings and tunnels, Clark (*Lartigue*), 3771.
Controlling the position of, Clark (*Lartigue*), 3771.
Mechanical "train and road apparatus," Morley, 3825.
Regulating tension of wires, Davenport, 3842.
Actuating and interlocking signal levers, Webb, 3916.
Apparatus for working audible, on engines, Bagot, 3932.
Locking and interlocking levers, Baines, 4010.
Between train in motion and station, Pocknell, 4063.
Self-acting electric block system, Clough, 4086.
Working pneumatically, Chambers, 4293.
Providing line wires with a stream of signals, How, 4304.
System of "tactile" signals, Banister & Stroudley, 4311.
Automatically placing fog signals on rail, Thornton, 4367.

Signals; communicating apparatus (ships'):

Actuating signal lamps and semaphores, Westrup, 30.
Indicating rise of water in ships' holds, Abel (*Redslob*), 168.
Composition for colored lights, Johnson (*Lamarre*), 214.
Fog signals and alarm bells, Pattison, 249.
Pneumatic telegraph for transmitting orders, Hopcraft, 372.
Water alarm for ships' holds, Hennuy, 703.
Torch or flambeau for, Kermode, 1020.
Electric telegraph for issuing orders, Walker, 1026.
Self-igniting mast head signal lights, Silas, 1218.
Self-igniting distress ("Rescue signal"), Holmes, 1394.
Electric-light apparatus, Johnson (*De Meresanne*), 1446.
Adapting the "Clapptograph" code to, Clapp, 1950.
Sounding approach to shallow water, Molony, 2473.
Effecting signals by and discharging rockets, Rogers, 3112.
Steadying bell and signal buoys, Hodgson, 3734.
Blowing sea fog horns or trumpets, Richardson, 3866.
Pneumatic telegraph and "sound projector" for, Cave, 4399.

Silica; silicates:

Producing gelatinous silica, Hunter, 1811.
Dissolving silicates, Edwards (*Freeland*), 3766.

Silk waste (utilizing). *See* "Rags."

Silver (substitute for). *See* "Metallic alloys."

Silvering and bronzing. *See* "Gilding."

Singeing fabrics and yarns. *See* "Finishing."

Singeing pigs:

Gas apparatus for saving fuel and labour, Pakenham, 285.

Sinking shafts. *See* "Mining."

Sinking wells. *See* "Wells."

Sinks:

Deodorising and filtering traps for, Synge, 254.
For street gutters, Synge, 255.
Stench traps for, Wilson, 534.
Combined lavatory, urinal and, Smeaton & Tylor, 1068.
Bab cocks for, Pearson, 1175.
Bab cocks for, Pearson, 1176.
Arranging, with receptacles for dirty water, Tylor, 3733.
Stench traps, Davis, 4403.

Siphons:

Exhausting the air from, Rew, 300.
For supplying, &c. corrosive liquids, Peters & Donald, 1297.
For filling bottles, kegs, &c., Clark (*Sherwood*), 3097.
Of "nickelised" iron, Monckton, 3509.
For drawing off liquids from casks, &c., Shanks, 4127.
For use in bottling still liquids, Ross, 4415.

Sirop de Froment. *See* "Dextrine."

Size:

For cotton and woollen yarns, Duckett & Mercer, 4.
For yarn or fabrics, Rawsthorne & Hartley, 62.
Treating animal, to obtain glue, &c., Miller, 241.
Gold size from linseed and like oils, Lake (*Cuttaneach*), 452

**Size—*cont.***

For cotton and other yarns and fabrics, Blackburn, 540.
From waste wool, hair, feathers, &c., Smith (*Melville*), 1314.
Preparing, for sizing warp yarns, Pilling, 4130.
From gelatine obtained in making bone manure, Wise, 4176.

**Sizing and preparing yarns for weaving:**

Cotton, linen and woollen, Duckett & Mercer, 4.
Laying fibres after, Rawsthorne & Hartley, 62.
Sizing and drying, Lord, 146.
Supplying yarn in form of warp from bobbins, Lord, 146.
Hot-air apparatus for drying after, Bullough, 177.
Yarns, threads and twines, Connor, 612.
Singeing and drying, Baerlein, 1098.
Drying by hot air, &c. after, Bullough & Whitehead, 1365.
Yarns for fancy fabrics, Hutchinson, 1366.
Sizing, dressing, drying, &c., Lancaster & Dollander, 1569.
Setting reeds & contracting yarns, Lancaster & Dollander, 1569.
Ventilating exhauster for use in, Ashton, 2054.
Marking and measuring yarns for weaving, Bailey, 3104.
Differential taking up or winding-on motions, Ziffer, 3474.
Regulating steam in, Metcalf & Gibbons (*Watts*), 3517.
Warp sizing machine, Newton (*Groshens*), 3797.
Sizing and greasing or waxing warp yarns, Pilling, 4130.

**Sizing paper.** *See* "Paper (making)."

**Skates:**

Drawing room or roller, Malcolmson, 1630.
Roller or "rink," Stanhope, 1940.
Adjustable roller, Spiller, 2574.
Roller ("Improved wheel skates"), Gregg, 2874.
Wheel and other ("Atalanta," "Comet," &c.), Wilkins, 2942.
Roller, Webb, 3197.
Solid and adjustable; skate blades, De Garrs, 3942.
Guidable roller and runner or ice, Plimpton, 4142.

**Skewers and creels.** *See* "Spinning."

**Skewers and shuttles.** *See* "Weaving (shuttles)."

**Skewers and skewer pulls:**

Combined skewer pull and knife sharpener, Clark (*Taft*), 780.
Combined skewer pull and knife sharpener, Clark (*Taft*), 2271.
Table instrument for seizing, &c. wooden, Weston, 3498.
Of "nickelised" iron, Monckton, 3509.

**Skins and hides.** *See* "Leather."

**Skirts.** *See* "Dresses."

**Skylights.** *See* "Windows."

**Slabs:**

Cutting marble, slate or stone into, Thompson, 275.
Cutting plastic substances into, Topping & Gregory, 621.
Material for making ("Lignolithite"), Brannon, 1246.
Stone pictures ("Pictoliths") for decorating, Brannon, 1472.
Of molten slag or scoria, Moore, 1496.
Compound material for and mode of making, Brannon, 2027.
Compound for constructing, for ships, Brannon, 2028.
Material for and mode of making, Brannon, 2128.
Cement or plastic for and moulding, O'Friel, 2500.
Match plank or tongue and grooved, of glass, Hyatt, 2752.
Composition for, and making artificial marble, Deane, 3007.
Backing artificial marble, Roettger, 3008.
Casting, from slag run direct from furnace, Paterson, 3325.
Imitation "faïence Parisienne," Gedge (*Guelton & Co.*), 3724.
Uniting asphalte, cement, plaster, &c. for, Macleod, 3904.

**Slag or scoria (utilising):**

Tiles, pipes, slabs and paving blocks of, Woodward, 128.
Granulating machine, Wood, 201.
As applied to fire-bricks, cement, &c., Horne, 1425.
Making bricks, tiles, slabs, building blocks, &c. of, Moore, 1496.
In compounds used for ships' fittings, Brannon, 2028.
For artificial fibrous stone fire safes, &c., Brannon, 2029.
For non-radiating cements, Clark (*Leydet*), 2555.
Hardening and applying, Macintosh, 2945.
For bricks, pipes, tiles, slabs, columns, &c., Paterson, 3325.
In factitious paving stones, Chomé-Steinbach, 3520.
In making refractory and hydraulic cement, Horne, 3641.
Breaking or crushing clinkers, Burge & Hall, 3696.
Black and grey, in extracting metals, Fairburn, 3892.

**Slate.** *See* "Stone."

**Slate (quarrying).** *See* "Mining."

**Slating roofs.** *See* "Roofs."

**Slaughtering; slaughter houses:**

Mastic for covering floors, Rae, 1674.
Instrument, for oxen, horses, &c., Baxter, 2924.

**Sleepers for railways.** *See* "Railways."

**Sleepers for tramways.** *See* "Tramways."

**Sleeping cars.** *See* "Railway carriages."

**Sleeve-links.** *See* "Buttons."

**Sleighs for carrying crops.** *See* "Carriages."

**Slicing and pulping roots.** *See* "Root-pulpers."

**Slicing fruit and vegetables.** *See* "Preserving food."

**Sliding shutters.** *See* "Shutters."

**Sliding windows.** *See* "Windows."

**Slippers.** *See* "Boots and shoes."

**Slop pails.** *See* "Buckets."

**Slops and sewage (treating).** *See* "Manure."

**Slubbing frames.** *See* "Spinning, twisting."

**Sludge (treating).** *See* "Manure."

**Sluices and floodgates:**

For docks, locks and basins, Stoney, 882.
For rivers, lakes, closed channels, pipes, &c., Stoney, 3103.

**Small-ware looms.** *See* "Weaving."

**Smearing sheep.** *See* "Medical treatment."

**Smelting, reducing and refining metals; treating ores:**

Making steel, Johnson (*Nes*), 10.
Combining steam-boilers with furnaces, Dudgeon, 20.
Heating furnaces, Benson (*Morris & others*), 64.
Mounting and working convertors, Webster, 93.
Utilising blast furnace slag or scoria, Woodward, 128.
Rotary puddling furnaces and rabbles, Alleyne, 161.
Granulating and purifying iron, Wood, 201.
Converting scraps, old rails, &c. into steel, Browne (*Foundries [& Forges Co.*), 220.
Thermo-electric apparatus for, Monckton, 265.
Recovering zinc from sulphates and chlorides, Monckton, 265.
Separating ores by magnetism, King, 296.
Furnaces for reducing iron ores, Kyte (*Wilson*), 339.
Converting iron cradles used in gas retorts into steel, Whit- [tingham (*Payne*), 348.
Heating puddling furnaces, Horrocks, 352.
Purifying iron ores and producing iron, Gerhard, 367.
Iron for alloys, Browne (*Foundries & Forges Co.*), 422.
Metallurgical coke for, Browne (*Foundries & Forges Co.*), 422.
Carbonising iron to produce steel, Webster, 465.
Asbestos mortar for lettling furnaces, Hyatt, 478.
Working blast engines by compressed air, Johnston, 531.
Precipitating metallic copper, Duncan (*Hunt*), 546.
Recovering tin from tin-plate scrap, Duncan (*Hunt*), 546.
Preventing escape of heat in cupolas, Haigh & Bleasby, 556.
Blast furnaces and cupolas, Aitken, 576.
Recovering or collecting products in, Aitken, 576.
Hot blast engine for, Johnson (*Hirsch*), 594.
Carbonising and purifying iron, Kirkwood & Smith, 609.
Treating metals with gases, Kirkwood & Smith, 610.
Condensing and collecting fumes in, Munts & Sharp, 667.
Cooling beds of puddling furnaces, Newton & Newton, 677.
Extracting gold by antimony, Bright (*Bright & Newbery*), 691.
Purifying iron for forming castings, Stone, 714.
An "artificial black band iron ore," Lyttle, 749.
Duplex furnace, Lyttle, 749.
Wheels of revolving ball furnaces, Carrick & Wardale, 786.
Extracting air and gases from fused steel and iron, Parsons, 879.
Washing or separating ores from their gangue, Taylor, 889.
Using anthracite in reverberatory furnaces, &c., Willans, 1038.
Furnaces for heating steel melting pots, Lewis, 1045.
Carbonaceous blast for converting vessels, Parsons, 1053.
Heating pig iron previous to melting, Parsons, 1053.
Refining, melting, converting, purifying and, Ramsden, 1059.
Roasting ores, Jensen (*Erichsen & Maardt*), 1072.
Purifying molten cast iron, Warner, 1094.
Metallurgical conglomerate and fuel for, Lyttle, 1096.
Iron and steel furnaces, Day (*Henderson*), 1267.
Recovering tin and iron from tin plate scrap, Stuart, 1276.
Moulding, &c. blocks of small iron ore for, Healey, 1315.
Making cast steel, Johnson (*Pernot*), 1317.
Working blast engines by compressed air, Johnston, 1332.
Purifying raw material for making pig iron, Coombe, 1344.
Utilising "purple ore" in making iron, Gossage, 1348.
Puddling furnaces, Newton (*Houdart & Co.*), 1349.
Cupola and blast furnaces, Millward (*Richardson*), 1387.
Extracting & refining copper; saving fuel, Gallico (*Stella*), 1404.
Steel and steeling articles by electro-deposition, Noad, 1422.
Plaster for lining cupola and blast furnaces, Horne, 1425.
Burning petroleum in furnace, Rawson (*d'Homergue*), 1442.

**Smelting, &c. metals; treating ores—*cont.***

Preparing granular or finely divided ores for, Wigg, 1513.
Furnaces and refineries for wrought iron, Stone, 1545.
Conglomerates for ("triplex compound"), Lyttle, 1560.
An "artificial black band iron ore;" saving fuel, Lyttle, 1560.
Heating blast in (Cowper's stoves), Cochrane & Cowper, 1623.
Desilvering and refining lead, Luce, 1662.
Melting and refining furnaces, Johnson (*Baxter*), 1677.
Smelting or puddling furnaces, Jensen (*Ayer*), 1680.
Converting pig iron, &c. into wrought-iron, Hunt, 1683.
Recovering tin and iron from tin plate scrap, Browne, 1692.
Machine furnaces for puddling, roasting, &c., Stanley, 1739.
Blast furnaces, Hedderwick, 1752.
Refining and purifying copper, &c., Laveissière, 1762.
Desilvering lead, Cicognani (*Podesta*), 1800.
Deoxidising and treating iron ores, Hunter, 1838.
Process and furnace for reducing iron ores, &c., Wheeler, 1847.
Process of making carbon and chrome steel, Wheeler, 1847.
Furnaces for making iron and steel, Johnson (*Peckham*), 1858.
Treating ores for iron and steel, Johnson (*Peckham*), 1858.
Washing and separating impurities from ores, Edwards, 1861.
Utilising gases from boiler furnaces for, Russell, 1962.
Puddling iron, Lowe & Beatson, 1981.
Mechanical puddling furnace, Johnson (*Pernot*), 1997.
Rotatory puddling furnaces, Lester & Fallows, 2007.
Puddling and other furnaces, Bainbridge & Pinkney, 2112.
Hot-blast furnaces, Lake (*Essex*), 2259.
Producing malleable iron and cast steel, Hart, 2265.
Producing cast iron for horse and tip nails, Mackley, 2281.
Utilising gases from blast furnaces, Lloyd, 2283.
Coke for making pig iron, Breckon, 2287.
Rotary puddling furnaces and rabbles, Alleyne, 2320.
Direct-acting steam-engine for puddling, Bremme, 2361.
Reducing iron and other ores, Ireland, 2395.
Using sludge as a flux and fuel for, Lyttle, 2446.
Fire-bricks, cement, &c. for furnaces, Holland, 2470.
Regenerator furnaces, Abel (*Foster*), 2488.
Fuel, for eliminating impurities, &c. in, Aitchison, 2494.
Air heaters for melting furnaces, Gedge (*Lepet & Co.*), 2514.
Sole plates for melting furnaces, Gedge (*Lepet & Co.*), 2514.
Producing cast iron from iron sponge, Imray (*Blair*), 2557.
Preparing peat charcoal for, Monckton, 2581.
Making speigeleisen, Murdock & Storey, 2616.
Making steel with metal manganese, Murdock & Storey, 2616.
Heating furnaces by means of sawdust, &c., Hodson, 2701.
Reducing ores, Haddan (*Corduris & Anthony*), 2708.
Making carbonic oxide for, Hanssen, 2749.
Fuel, from peat, &c. for, Byron (*Lester*), 2751.
Operating furnace fire-bars, McDougall, 2759.
Puddling furnaces, to save fuel and prevent smoke, Wood, 2814.
Spraying gases, liquids and vapors in furnaces, Smith, 2815.
Producing hard, soft and malleable cast iron, Byron, 2883.
Cupolas and furnaces, Lyttle, 2930.
Combined melting, refining and puddling furnace, Evans, 2931.
Furnaces for calcining ores, Blaziček & Bauer, 2973.
Supplying hot air to puddling furnaces, Deguine, 2983.
Reducing iron ore, washing & consolidating same, Lyttle, 2984.
Cooling roasted and winnowing powdered ore, Lyttle, 2984.
Producing malleable iron or steel, Lyttle, 2984.
Rotating annular beds for furnaces, Schofield, 3025.
Treating sulphur ores, Wilkes & Aunier, 3087.
Furnaces for smelting ores and melting, Plum, 3118.
Removing impurities from pig or crude iron, Aitken, 3127.
Spray generator and injector for use in, Duncombe, 3138.
Purifying and converting metals, Duncombe, 3138.
Flux for restoring "burnt" steel, Abel (*Schierlok*), 3149.
Furnaces for roasting ores, Clark (*Heiligendorfer*), 3259.
Dead plates for muffle furnaces, Darlaston & Hawkins, 3292.
Puddling furnace and rabble, Henderson, 3314.
Destroying gases in roasting ores, Bowen & Miller, 3324.
Utilising slag from smelting, &c. furnaces, Paterson, 3325.
Obtaining copper and silver from low-class ores, Clarke, 3339.
Using hyposulphite of soda in treating ores, Clarke, 3339.
Blocks of crushed ore, peat, oil, &c. to save fuel, Stone, 3356.
Iron for alloys, Browne (*Foundries & Forges Co.*), 3396.
Coke for & saving fuel in, Browne (*Foundries & Forges Co.*), [3396.
Consuming smoke, &c. in furnaces, Stirling & Peacock, 3419.
Precipitating lead, copper, tin, &c., Newton (*Roswag*), 3451.
Kiln for calcining ores, Siemens & Stein, 3457.
Hydraulic apparatus for operating rabbles, Foulis, 3486.
Utilising waste gases from blast furnaces, Barclay, 3488.
Heating and depriving air of moisture for, Barclay, 3488.
Producing currents of air in blast furnaces, Johnson, 3545.
Separating metals from ores by "wet process," King, 3551.
Vanning or separating heavy ores, Clark (*Frue*), 3556.
Extracting metals from ores by "wet process," Emmens, 3609.
Compounds for purifying iron and steel, Freeston & others, 3665.
Feeding, &c. purifying compounds in, Freeston & others, 3665.
Rotating fire-bars for puddling, &c. furnaces, Bloomer, 3683.
Consuming smoke in ball, &c. furnaces, Jowett & Hunter, 3739.
Concreted "triplex compound" for, Lyttle, 3761.
Separating silver, gold, &c. from solutions, Snelus, 3780.
Tuyeres for blast and refinery furnaces, Lloyd, 3833.
Trunnion ladle and metal receiver, Smyth & Simpson, 3840.
And purifying, refining and converting, Smyth & Simpson, 3840.

**Smelting, &c. metals; treating ores—*cont.***

Puddling, balling and heating furnaces, Smyth & Simpson, 3840.
Generating gases for purifying, Smyth & Simpson, 3840.
Mechanical puddler, Smyth & Simpson, 3840.
Water bosh, tymp and tuyere alarm, Jones & Thomson, 3857.
Furnace tuyere leakage indicator, Darby & Green, 3866.
Pneumatic apparatus for blast furnaces, Richardson, 3868.
Blast vacuum furnace, Smyth & Simpson, 3881.
Purifying, refining and converting, Smyth & Simpson, 3881.
Receivers for treating metals, Smyth & Simpson, 3881.
Using slags in extracting & refining gold, &c., Fairburn, 3902.
Puddling, balling & heating furnaces, Smyth & Simpson, 3906.
Self-acting mechanical puddler, Smyth & Simpson, 3906.
Artificial cinder for use in refineries, Cameron, 3963.
Using anthracite fuel in iron refineries, Cameron, 3963.
Using anthracite in cupolas for remelting, Cameron, 3963.
Battery for precipitating metals, Pulvermacher, 3967.
Treating hard spelter to recover zinc, &c., Dahne, 3978.
Separating the zinc used in desilvering lead, Dahne, 3978.
Process of making iron and steel, Lyttle, 4080.
Rotary puddling furnaces, Jones & Jones, 4122.
Air compressing engine for furnaces, Walker & Pfaum, 4129.
Treating ores for making iron and steel, Ireland, 4215.
Furnaces for making iron in all stages, Regan, 4218.
Separating tin, solder, or zinc from iron, Morton, 4238.
Or extracting iron, copper, &c. from ores, Stone, 4336.
Refining blast heating and ore drying furnaces, Stone, 4336.
Furnace and method of carbonising, Bonneville (*Eames*), 4346.
Treating ores, &c. to obtain gold, &c., Clarke & Smith, 4448.
Desilvering lead tin dressing, Clarke & Smith, 4448.
Using and mixing oxide of iron in converters, Kirkwood, 4465.
Purifying slag and molten metal, Kirkwood, 4465.
Rotary puddling machines, Johnson (*Sellers & Sellers*), 4474.
Combined peat and chalk fuel for, Stevenson & Hart, 4483.

**Smiths' forges.** *See* "Forging metals."

**Smoke prevention; burning and consuming smoke:**

In furnaces, Clark (*Casement*), 69.
In furnaces, Crosland, 151.
In boilers, furnaces and evaporating pans, Dearman, 297.
In stoves or fireplaces, Sherman, 464.
In fire-boxes of heating apparatus, Buckingham, 551.
In steam-boiler furnaces, Morton, 588.
In stoves, grates, or fireplaces, Sanderson & Proctor, 600.
In gas-burners, Siebert, 622.
In steam-boiler furnaces, Rydill, 637.
In furnaces, Kirtley, 765.
In tramway steam locomotives, Jensen (*Köhl*), 797.
In steam-boiler furnaces, Hillcoat & Montgomery, 1063.
In kitchen ranges, Wood, 1065.
In furnaces, Smith, 1092.
In steam-boiler furnaces, Jones, 1115.
Chimney caps or terminals and wind guards, Cox, 1156.
In steam-boiler furnaces, Stephenson & Pickup, 1204.
In steam-boiler furnaces, Schallehn (*Steamer*), 1217.
In steam boiler furnaces, Lake (*Renshaw*), 1300.
In furnaces, Whitaker, 1358.
In steam-boiler furnaces, Millward (*Richardson*), 1387.
In bakers' ovens, Fearnley, 1423.
In steam-boiler furnaces, Hyde, 1616.
In furnaces, Jensen (*Ayer*), 1680.
In furnaces or fire-grates, Macfarlane & Macfarlane, 1825.
In burning air-gas, Clark (*Cayce*), 1851.
In furnaces, Campbell & Gemmill, 1895.
In steam-boiler and other furnaces, Nimmo, 1900.
In fire-places and steam-boiler furnaces, Black & Leiper, 2011.
In furnaces, stoves, &c., Bainbridge & Pinkney, 2112.
In boiler and other furnaces, Smith, 2148.
In furnaces, Waugh, 2255.
In glass furnaces, Percival, 2345.
In steam-boiler furnaces, Spartali, 2367.
In vertical boiler furnaces, Johnson (*Lobdell*), 2384.
In hot stoves or hot plates, Court, 2405.
In steam-boiler furnaces, Jolly, 2440.
In steam-boiler and other furnaces, Eastwood & others, 2463.
In coke ovens, Johnson (*Gobiet*), 2512.
In locomotive boilers, Newton (*Nicholsson & others*), 2525.
Cowl for, Mouly, 2566.
In kitchen ranges with "Janus grate," Ball, 2583.
In furnaces and fire-places, Wrigley & others, 2756.
In steam-boiler and other furnaces, McDougall, 2759.
Flues for stoves and kitchen ranges, Sykes, 2779.
In domestic fire-grates, Caton, 2792.
In steam-boiler, puddling and other furnaces, Wood, 2814.
In domestic fire-places, Russell, 2895.
In puddling, steam-boiler and other furnaces, Lyttle, 2930.
In steam-boiler furnaces, Powleson, 2959.
In steam-boiler and other furnaces, Eddison, 2967.
In stoves and furnaces, Blaziček & Bauer, 2973.
In open fire-places, Lane, 2975.
In kitchen ranges, Constantine & Hearson, 3068.
In furnaces of salt pans, Barrow, 3139.
In oil-lamps, Clark (*Granier*), 3145.
In steam-boiler and other furnaces, Lake (*Jasper*), 3213.

**Smoke prevention, &c.—*cont.***
In cooking ranges, Corbitt, 3283.
In steam-boiler and other furnaces, Darlaston & Hawkins, 3292.
In furnaces or fire grates, Stirling & Peacock, 3419.
In high pressure steam-boiler furnaces, Arnold, 3501.
In railway carriage and other oil lamps, Doty, 3605.
In furnaces or fire-places, Jowett & Hunter, 3739.
In locomotive steam-boiler furnaces, Cook, 3890.
In steam-boiler furnaces, Péne, 4047.
In steam-boiler furnaces, Salmon, 4107.
In furnaces for making iron, &c., Regan, 4218.
In furnaces of generators, Gedge (*Dubois*), 4301.
In steam-boilers furnaces, Cheesbrough (*Ford*), 4381
In steam-boiler furnaces, Cheesbrough (*Ford*), 4383.
Condensing smoke, Speir & Mather, 4386.
In straw-burning boiler furnaces, Marshall & Lister, 4467.
Curing smoky chimneys, Hogg, 4468.

**Smoking fish.** *See* "Preserving food."

**Smoking or fumigating.** *See* "Perfuming."

**Smoking pipes and tubes.** *See* "Tobacco."

**Smut-machines.** *See* "Grain and seeds (treating)."

**Snaps or portable connectors:**
For harness, &c., Cockings (*Reynolds*), 154.
For chains, Bennett, 945.

**Snatch blocks.** *See* "Pulleys."

**Snuff-boxes.** *See* "Tobacco."

**Soap:**
Metallic ("Guignet's dressing"), Johnson (*Cambon & Co.*), 18.
From liquors in cleansing cotton waste, Ford, 269.
For finishing woven fabrics, Watterson, 456.
From wool washing suds, &c., Benjamin, 682.
Using silicates of magnesia, &c. as detergent, Smith, 1002.
Devices for soap boiling, Lake (*Renshaw*), 1300.
Making soluble, and saving fuel, Newton (*Tardani*), 1614.
Fuel-saving furnace for heating boilers, De Pindray, 1719.
Making soft white household, Jacobson, 2030.
Applying "Zapotine" in making, Conybeare & Naphegyi, 2106.
Producing palmitic acid for, Morgan-Brown (*Bastie*), 3021.
Making a "sovonelle," Morgan-Brown (*Bastie*), 3021.
Employing kaolin in making, Brandon (*Lavandier*), 3161.
Saponifying greasy or fatty matters for, Lombardon, 3715.
Machine for mixing perfume in, Morgan-Brown (*Fisch*), 3732.
Making under heat and pressure, Edwards (*Freeland*), 3766.
Injector, &c. for use in making, Edwards (*Freeland*), 3766.

**Soap bubbles (making).** *See* "Toys."

**Sockets:**
For telegraph and other posts, McCool, 1712.
For telegraph poles, Muirhead, 2074.
For carriage lamps, Scott, 2290.
For bolts, studs and socket covers, Dowland, 3963.
For securing whips in vehicles, Knibbs, 4003.
For fixing and preserving wooden posts, Hale, 4144.

**Soda.** *See* "Alkalies."

**Soda-water.** *See* "Aërated liquids."

**Sofas.** *See* "Furniture."

**Softening flax, hemp, &c.** *See* "Spinning (batting)."

**Solder.** *See* "Metallic alloys."

**Soldering metals:**
Apparatus for, cans, canisters, &c., Merriam, 370.
Provision tins, &c., Johnson (*Teyssonneau*), 760.
Combining coarse and fine solder, Murdoch (*Shaw*), 2246.
For carriage lamps, Scott, 2290.
Aëro-gas soldering apparatus, Mills (*Sears*), 2988.
New races to spinning rings, Lake (*Shaw*), 4077.

**Solidifying paraffin.** *See* "Oils (minerals)."

**Solitaires.** *See* "Buttons."

**Sorting and separating.** *See* "Sifting."

**Sound projectors.** *See* "Signals."

**Soundings:**
Thermometers used in deep sea, Negretti & Zambra, 109.
Adapting grapnels for taking, Clark (*Toselli*), 1559.
Working ships' lead and shaping same for taking, Poole, 2351.

**Sowing seed:**
Double drill plough for, Wilson, 166.
Drills for, at desired distances, De Fever, 209.

**Sowing seed—*cont.***
Ozonising potato seed, Monckton, 265.
Lifting and pressing drill levers, Gregory, 571.
Attachment to ploughs for, Lake (*Donnelly*), 1128.
Combined manure and seed drill, Savage, 1613.
Drills for, Gooday, 1862.
Safety feeding guards for seed drawers, Fison, 2092.
Drills for, Hollings (*Hollings*), 2137.
Drills for, Coultas & Coultas, 2141.
Drills for, Kell, 2219.
Spreading or distributing seeds, Willacy, 2306.
Drills for, Dening & Dening, 2325.
Broad-cast sowing machines, Rawbone (*Codville*), 2327.
Self-acting potato drill, Bonneville (*Couteau*), 2362.
Potato planting machine, Aspinwall, 3703.
Windlass and driving gear for drills, Yull, 3899.

**Spades, shovels or scoops:**
Grain and malt, Finlayson, 805.
Spade-bayonet, Hughes (*Chillingworth*), 1433.
Making steel shovels, Curtis (*Mac Martin*), 1594.
Making blanks for, Abel (*Blake*), 1843.
Making cast steel, Johnson, 2094.
Coffer shovels, Taylor, 4488.

**Spanners.** *See* "Wrenches."

**Spark arresters.** *See* "Steam-engines."

**Spars and masts.** *See* "Ships' masts."

**Speaking tubes for divers.** *See* "Diving."

**Specific gravity:**
Means for ascertaining all kinds of, Peak, 648.

**Spectacles; eye protectors:**
For firemen, miners, stokers, &c., Lake (*Beardsley*), 857.

**Spectroscopes.** *See* "Optical instruments."

**Specula (vaginal).** *See* "Surgery."

**Speed indicators.** *See* "Indicating."

**Speed regulators.** *See* "Governors."

**Speigeleisen.** *See* "Smelting metals."

**Spelling (teaching).** *See* "Teaching."

**Spikes.** *See* "Nails."

**Spindles; spindles and flyers:**
Shuttle, Becker, 9.
Composition for bearings, Cohné, 37.
Lubricating picker, Peel & Emsley, 47.
Footsteps and bolsters for, Butterworth, 228.
Driving, Ramsden, 325.
Of spinning frames, Leigh, 398.
Bolsters and step bearings for, Newton (*Wilson & Folk*), 458.
Mounting, for revolving brushes, drills, &c., Egerton, 617.
Oiling picker, Peel & Emsley, 632.
Sole or socket and oiling, Bonneville (*Broux & Broux*), 644.
Oiling picker, Keighley, 695.
For spinning frames, Emsley, 696.
Constructing, driving and oiling, Ramsden, 718.
Of fringing machines, Collins, 789.
Flyers for rope yarn twisting frames, Dixon, 959.
Oiling or lubricating, Bonneville (*Broux*), 1230.
Spindle spring & oil cup, Midgley (*Cockcroft & Ackroyd*), 1364.
Bearings and footsteps, Brooks & others, 1502.
Flyers for regulating "drag" on yarn, Ripley & Seton, 1748.
Oiling steps and bolsters of, Booth (*Draper & Draper*), 1835.
For lathes, for turning joints of fishing rods, Jack, 1840.
Making cast steel, Johnson, 2094.
Continuous flyers for spinning and roving frames, Combe, 2348.
Mounting, oiling and driving spindles and flyers, Combe, 2348.
For spinning frames, Clark (*Bourcart*), 2479.
Actuating and driving, in craping hair, &c., Jowett, 2487.
Bolster-bearings of, Haseltine (*Rabbeth*), 2497.
Oiling spinning machine, Haseltine (*Rabbeth*), 2497.
Bolsters and footsteps for, Raworth, 2707.
For adjusting drill cylinders, Hosking & Blakewell, 2760.
Regulating drag of throstle, Asquith & Greenwood, 2803.
Constructing mule spindles in two parts, Gibson, 2868.
Fitting stone spindles in cement and other mills, Howe, 3042.
Flyers for doubling or twisting machines, Unsworth, 3635.
Arranging and oiling, in spinning, Mayor (*Chatterton*), 3854.
Bearings, footsteps and bolsters; oiling same, Revell, 3862.
Fixing tubes or collars on mule, &c. spindles, Revell, 3862.
Weighting flyers for steadying spindles, Revell, 3862.
Throstle spindles; driving flyers, Emsley & Smith, 4069.

## Spindles; spindles and flyers—*cont.*

Spindle steps and bolsters; oiling same, Lake (*Shaw*), 4068.
Expansive shuttle, Le Moyne, 4199.
Applying friction breaks to, of throstles, Smith, 4207.
Oiling footsteps of, Stott & others, 4279.
Cotton bands for driving, Rowbottom, 4353.

## Spinning (batting, opening, ginning & cleaning fibres):

Woollen fibres, Gottheil (*Mehl*), 21.
Dressing silk fibres, Mason & Mason, 821
Winding colored slubbings in lap machines, Bickerton, 912.
Shake willey, Knowles, 1581.
Drawing frames and forming into laps, Rushton, 1599.
Percussive engine for beating flax, Darlington, 1724.
Breaking and scutching flax, Clark (*Hartog & Co.*), 1900.
Constructing "willows," Greenhalgh & others, 2697.
Obtaining fibres, Newton (*Mitscherlich*), 2939.
Stripping or scutching flax, hemp, ramie, &c., Cardon, 2998.
Feeding, &c. self-acting willows, Messrs. Holt, 3074.
Cleansing wool, &c. from grease, burrs & seeds, Sirtaine, 3120.
Applying an exhaust to openers and cleaners, Clegg, 3143.
Cleaning, opening and softening flax, hemp, &c., Gibbs, 3159.
Rolled wire cards for openers, &c., Ashworth & Ashworth, 3441.
Actuating flax breaking machines, Aspinwall, 3723.
Separating, &c. vegetable fibres, Meech, 3821.

## Spinning (carding, combing and heckling fibres):

Drawing long wool for combing, Barlow (*Dobson & Dobson*), 11.
Actuating the gills, to dispense with circular combs, Fox, 82.
Drawing untwisted or soft slivers, Donisthorpe & others, 171.
Preparing silk, wool or hair for combing, Lister, 299.
Constructing and setting carding-engines, Leigh, 398.
Cylinders, doffers and rollers, Leigh, 398.
Saw teeth for cards, Pichard, 416.
Carding-engines, Johnson (*Plantrou*), 420.
Heckling sheets for flax, &c., Johnson (*Walker & Co.*), 475.
Combing, re-combing, sliver boxes, Mirfield & Scott, 573.
Separating and straightening before combing, Holden, 578.
Grinding travelling flats, Clegg & Lucas, 623.
Wire cards, Haley, 722.
Preparing and combing, Little & Eastwood, 762.
Bends or bows of carding-engines, Thornton, 801.
Stopping feed motion in winding off lap rods, Bickerton, 912.
Condensing, carding and scribbling-engines, Evans, 1057.
Chain sheet drawing mechanism, Dear, 1153.
Making spaces in condenser doffers, Bateman, 1202.
Mounting card fillets on carding cylinders, Walton, 1376.
Combing wool and other fibres, Priestman & Crook, 1592.
Pointing wire cards and heckle teeth, Richardson, 1681.
Circular combing-machines, Lohren, 1706.
Condenser carding-engine surfaces, Shawcross, 1759.
Automatic eveners for wool cards, Johnson (*Burlock*), 1813.
Screw gill boxes, Pearson & others, 1818.
Feeding different lengths of fibre in, Knowles, 1828.
Stripping carding cylinders, Higgins & Whitworth, 1884.
Carding engine equalising apparatus, Cunningham, 1887.
Hackling flax, &c., Clark (*Hartog & Co.*), 1900.
Lubricant for use in carding wool, Greig, 1970.
Carding and cleaning cotton, &c., Parkinson & Lord, 2023.
Preparing and combing silk waste, Lister, 2063.
Cleaning carding-engine teeth, Beaumont, 2278.
Double doffer condensers, Knowles & Fenton, 2296.
Cleansing "doffers" from dust, &c., Knowles & Fenton, 2296.
Combing flax, &c., Mewburn (*Delannoy et fils*), 2301.
Feeding boxes of combing machines, Whitehead, 2344.
Substitute for screw gills, Combe, 2348.
Dressing, hackling, drawing out, &c., Wright & Leidler, 2376.
Feeding "long wool," &c. to carding-engines, &c., Tatham, 2392.
Preparing silk, &c. for combing, O'Hara & others, 2399.
Feeding fibres to carding-engines, Batty & Blackburn, 2531.
Feeding carding-engines, without weighing, Armitage, 2556.
Chain gill spreading, drawing and hackling, Lawson, 2363.
Stopping carding-engines when sliver can is full, Smith, 2981.
Laying fibre on carding or dirt roller, Kenyon & Kenyon, 3001.
Applying an additional comb to gill-boxes, Bailey, 3068.
Taking fibre from gill combs in nip machines, Holden, 3123.
Preparing & combing wool, cotton, &c., Little & Eastwood, 3213.
Feeding wool, cotton, &c. to carding-engines, &c., Maclean, 3263.
Feed-boxes for combing machines, Priestman & Crook, 3388.
Applying knife to feed mechanism, Jubb & Dransfield, 3391.
Steel wire card covering for rollers, Thornton, 3562.
Mixing "silk bits" in combing, Bonneville (*Valentin*), 3660.
Feeding and weighing fibres to scribblers, &c., Evans, 3730.
Feed rollers for flax tow carding-engines, Marshall, 3738.
Raising and lowering wool scale pans, Hudson, 3896.
Adjusting Bodmer feeder for various lengths, Knowles, 3912.
Carrying hackle sheets, Combe (*Droulers-Vernier*), 3943.
Combing flax & hemp; picking & carding cordage, Latour, 3948.
Heckling hemp and other fibres, Frost, 3957.
Wool, &c. combing machine, Campbell, 4005.
Chains for carrying gill bars or combs, Kennedy, 4016.
Driving, sustaining and guiding gill bar chains, Kennedy, 4016.
Chains for carrying hackle bars, Whitehead, 4017.
Keeping hackle pins perpendicular, Whitehead, 4017.
Hackling flax, &c. and forming slivers, Whitehead, 4017.

## Spinning (carding, combing, &c. fibres)—*cont.*

Gill bars of chain gills, Lawson, 4245.
Cleaning carding-engine "creeper" rollers, Midgley, 4273.
Forming wire cards, Crosland, 4317.
Heckling or treating hemp, jute, &c., Lawson, 4323.
Heckling or preparing hemp, &c., Frost, 4324.
Using troughs in preparing frames, Girdwood, 4376.
Comb and "gill box" for combing machines, Fairburn, 4395.

## Spinning (twisting, drawing, slubbing, roving and [doubling fibres):

Polishing fluted rollers used in, Threlfall & others, 30.
Roving worsted or mixed fibres, Donisthorpe & others, 171.
Self-acting mules, Smith & Hartley, 188.
Making wooden rollers used in, Johnson (*Ireland*), 215.
Footsteps and bolsters, Butterworth, 228.
Bottoming factory cans, Lake (*Shepard & Seaman*), 278.
Driving the spindles, Ramsden, 325.
Spun silk for crape, Kay & Richardson, 387.
Ring, traveller and throstle frames, Leigh, 398.
Checking waste in doubling frames, &c., Makin & Skerratt, 453.
Creels of doubling frames, Makin & Skerratt, 453.
Spindles, bolsters and steps, Newton (*Wilson & Folk*), 496.
Winding motion of mules and twiners, Clegg & Taylor, 555.
Collecting dust and fluke in drawing frames, &c., Knowles, 574.
Forming rollers to facilitate drag, Bywater & Smith, 646.
Spindles, flyers and lifter plate, Emsley, 696.
Constructing and driving spindles, Ramsden, 718.
Self-acting mules, Clegg, 811.
Throstle doubling and spinning frames, Moscrop, 812.
Without flyers, Kelley & others, 827.
Lubricating spindles, Bonneville (*Broux*), 1230.
Self-acting mules, Willby, 1248.
Stop motion, Unsworth, 1268.
Drawing and twisting device and oil reservoir, Chapin, 1282.
Preventing "hard ends" in "trap twisters," Lumb, 1319.
Ring twisting machines, Midgley (*Cockcroft & Ackroyd*), 1354.
Throstles and doublers, Brooks & others, 1502.
Drawing and spinning cotton direct from sliver, Ward, 1543.
Rings of ring and traveller frames, Chapin, 1735.
Flyers; regulating drag on the yarn, Ripley & Seton, 1749.
Combined mule and spinning frame, Whiteley, 1804.
Spinning machinery, Maigron, 1822.
Spindles, bolsters, steps and rings; oiling spindles, &c., Booth [(*Draper & Draper*), 1838.
Clearer for silk, cotton, &c., Ward, 1854.
Slubbing or roving frames, Higgins & Whitworth, 1884.
Dyeing "rove" for colored yarns before drawing, Kennedy, 2213.
Wharle tubes, Wellens, 2244.
Obtaining threads from "rubbing" leathers, Knowles & Fenton, [2296.
Arranging bobbins and flyers and regulating drag, Combe, 2348.
Flyers, spindles, bobbins and drawing rollers, Combe, 2348.
Long collars of throstles, &c., Bullough (*Townson*), 2409.
Spindles, flyers and means of doffing, Clark (*Bourcart*), 2473.
Spindles and bolsters, Haseltine (*Rabbeth*), 2497.
Grooved cylinders used in, Bonneville (*Martin*), 2536.
Winding on motion in mules, McMyn & Taylorson, 2668.
Bolsters and footsteps and carrying same, Raworth, 2707.
Folding and balling slivers, Whitehead (*Skene & ass.*), 2794.
Regulating drag in ring frames, Asquith & Greenwood, 2868.
Twisters and threading rovings in, Asquith & Greenwood, 2868.
Constructing mule spindles in two parts, Gibson, 2868.
Affixing metal rings to bobbin flanges, Jackson, 2885.
Mules, Dodd, 2899.
Stopping coiler mechanism in drawing frames, Smith, 2981.
Doubling and winding yarns and threads, Smith, 3354.
Arranging spindles in mules, &c., Broadbent, 3479.
Twiner doubling machine, Hutcheson & Rushton, 3531.
Mules; starting drawing rollers, Hutcheson & Rushton, 3531.
Mounting and arranging clearers, Roberts, 3557.
Backing off motion for mules and twiners, Chisholm, 3601.
Flyers for doubling or twisting machines, Unsworth, 3633.
Spools or bobbins, Haseltine (*Bryant & Nichols*), 3644.
Fluting rollers for spinning frames, Squire & McComb, 3646.
Throstle spinning frames, Ripley & Seton, 3674.
Ring frames; arranging spindles, Mayor (*Chatterton*), 3854.
Spindles, flyers and footsteps or bearings, Revell, 3862.
Bolsters, collars and bobbin wheels or braids, Revell, 3862.
Lubricating collars, spindles, footsteps, &c., Revell, 3862.
Self-acting mule nosing motion, Drabble (*Crighton*), 4022.
Winding preparatory to doubling, Stubbs & Corrigan, 4061.
Throstle spindles and lifter plates, Emsley & Smith, 4069.
Repairing spinning rings, Lake (*Shaw*), 4077.
Spindle steps and bolsters; oiling same, Lake (*Shaw*), 4068.
Doubling and winding frames, Boyd & Boyd, 4119.
Doubling by Danforth's American throstle, Smith, 4207.
Applying breaks to spindles, &c. of throstles, Smith, 4207.
Creels and skewers, Shippobottom & Battersby, 4216.
Oiling spindle footsteps, Stott & others, 4279.
Forming & connecting cotton bands used in, Rowbottom, 4353.
Spooling yarns or threads, Smith, 4385.

## Spinning or forming metallic articles:

Heat shields for stoves, &c., Conger, 4030.

**Spinning ropes.** *See* "Ropes."

**Spinning tobacco.** *See* "Tobacco."

**Spires.** *See* "Buildings."

**Splints:**
System of, for repairing shafts, &c., Tongue (*Devrès*), 4361.

**Splints and pads.** *See* "Surgery."

**Splints for matches.** *See* "Matches."

**Splitting hides or skins.** *See* "Leather."

**Splitting wood.** *See* "Cutting wood."

**Sponge:**
Floor coverings of, Lake (*Kendall*), 701.
Packing journal-boxes with, Bonneville (*Devlan*), 767.

**Spooling yarns or threads.** *See* "Winding."

**Spools.** *See* "Bobbins."

**Spoons and ladles:**
Silver-like alloys for making, Parkes, 2064.
Of "nickelised" iron, Monckton, 3509.
Stamping or pressing designs on metal, Smily, 4202.

**Spray producers:**
Portable ether and perfume, Burman & De Frece, 575.
Spraying liquids to cool them, Hackin, 1001.
For condensing muriatic acid gas, &c., Newall, 2077.
For treating metals and gas-making, Smith, 2815.
For extinguishing fire in rooms, ships, &c., Halmshaw, 2830.
For water in air pumps, &c., Johnson (*Geneste & others*), 3047.
For purifying and converting metals, &c., Duncombe, 3138.
For disinfecting and fumigating rooms, &c., Duncombe, 3138.
Jet apparatus for impelling liquids, &c. as spray, Körting, 3504.
Spraying perfumes, scents, essences, &c., Pleasner, 4151.
For condensing vapours or gases, Speir & Mather, 4386.

**Spreading manure.** *See* "Manure distributors."

**Spriggs, budds and tip nails.** *See* "Nails."

**Spring-balances.** *See* "Weighing."

**Springs:**
Steam-engine valve, Haseltine (*Jones & Pauly*), 35.
For cloth stretching and finishing, Stewart, 192.
For wheelbarrows, Mills (*Rolland & Vanhoorde*), 635.
For bicycles, Grout, 1163.
Traction-springs for vehicles, Abel (*Fehrmann*), 1326.
Carriage, door and furniture, Clark (*Doremus*), 1410.
Railway and other carriage, Clark (*Styles & others*), 2041.
For furniture, vehicles, &c., Johnson (*Le Luyer*), 2084.
For railway and other carriages, Scott, 2290.
Spiral, in lieu of compound spiral springs, Braun, 2356.
Traction, for vehicles, Abel (*Fehrmann*), 2505.
For mattresses, sofas, &c., Corroyer (*Desoutter*), 2535.
India-rubber globe, for buffers, Lindblad & Edey, 2604.
Elliptic, for carriages, Lake (*Cliff & Vose*), 2712.
For mattresses, seating of sofas, chairs, &c., Welch, 2714.
Connecting and locking plates of, Byron (*Godley*), 2817.
Spiral, for carriages, bolsters & journals, Byron (*Godley*), 2817.
For railway and draught carriages, Henry (*Giffard*), 2882.
For leather rounding machines, Lake (*Osborne*), 3045.
Of "nickelised" iron, Monckton, 3509.
For carriages and other purposes, Simpson (*Simpson*), 4134.
For portable forge fan gear, Rollins (*Kellogg*), 4136.
Splints, &c. for repairing, Tongue (*Devrès*), 4361.
For dynamometers, gauges and spring-balances, Burg, 4390.
Corrugating curved plates of, Sterne (*Vose*), 4394.
Combining helical springs, Holland & Phillips, 4484.

**Spurs.** *See* "Harness."

**Squibs, fuses and matches.** *See* "Blasting."

**Stables; cattle sheds:**
Material for making stable fittings, Brannon, 1246.
Impermeable pavement for ("wood macadam"), Morison, 1476.
Mastic for covering floors, Rae, 1674.
Compound material for forming fittings, Brannon, 2027.
Deodoriser for, Monckton, 2561.
Pavement for ("wood mosaic"), Morison, 3744.

**Stacking bricks.** *See* "Bricks."

**Stacking or elevating:**
Corn, hay, straw, &c., Cottingham, 791.
Straw, Guest, 901.
Horse hay and straw fork, Hunt (*Williams*), 1165.
Hay, corn, &c., Mitchell, 1302.
Elevators for thrashing and other machines, Fison, 2092.
Building ricks or mows upon sleighs, Pattison, 2101.
Collecting and elevating cut crops on to wagons, Dean, 2223.

**Stag horns (imitating).** *See* "Bone."

**Stages or platforms.** *See* "Platforms."

**Stains:**
Producing black, from aniline, Casthelaz, 2009.

**Stair treads and steps.** *See* "Buildings."

**Stalls for cattle on board ship.** *See* "Cattle."

**Stamping metals.** *See* "Punching metals."

**Stamping or embossing presses.** *See* "Embossing."

**Stamping or impressing:**
Paper collars and other articles by machinery, Reuter, 4137.

**Stamping ores and minerals.** *See* "Grinding."

**Stamps:**
Feeding, damping & affixing postage & other, Dockrell, 1608.
Vessel for moistening, Jacobsohn, 3975.

**Stamps (pocket, hand and endorsing):**
Ink for pads of ("Asteatine"), Clark (*Cré*), 1995.
Pocket printing marker or stamp, Lawrence & Lawrence, 3091.
Stamping and inking bonds, &c. in relief, Bodel & others, 3277.
Stamping interest in pawnbrokers' ledgers, Brockbank, 3673.
For marking dates, numbers or names, Brockbank, 3673.
Dating letters from outside envelope, Jacobsohn, 3953.
Stamping or marking bales, Jones, 4038.
Stamping tickets, gloves, collars, &c., Brockbank, 4259.
For inking and blind stamping, Smith (*Abercrombie*), 4485.
For dating or impressing, Smith (*Abercrombie*), 4485.

**Stand pipes.** *See* "Watering."

**Standard surface plates.** *See* "Testing."

**Standards for machinery.** *See* "Columns."

**Staples:**
For uniting boots & leather work, Morgan-Brown (*Keniston*), 5.

**Starch and fecula:**
Straining liquid or moisture from starch, Clark, 1453.
Preparing colored starch for finishing, Farrant, 1751.
Centrifugal filtering machines, Johnson (*De Loynes*), 1916.
From paste without reducing to meal, Sézille, 3309.
Converting, into gum, glucose, caramel, &c., Manbré, 3639.
Solid "dextrin-maltose" from, O'Sullivan & Valentin, 3909.

**Starching woven fabrics.** *See* "Finishing."

**Starting railway trains.** *See* "Railways."

**Starting tram-cars.** *See* "Tramway carriages."

**Station indicators.** *See* "Railway carriages."

**Stationery cases.** *See* "Furniture."

**Statuary.** *See* "Sculpture."

**Stays; corsets; corselets:**
Friction buckles for, Dethiou, 542.
Hooks and studs of fasteners for, Clarke, 1385.
Eyelets for, Elsam (*Pults & Walkley*), 1577.
Busks and clasps for, Brewer (*Mc Lean*), 2629.
Adding steel bands to busks, Lyman & Stokes, 2740.
Attaching dress improvers to, Williamson, 3039.
Adjustable, for use during pregnancy, Joyce, 3543.
Combined corset and dress-improver, Whale (*Schultz*), 4277.

**Steam (supplying to towns or districts):**
System of mains, &c. and applying same, Lake (*Coleman*), 2065.
System of mains, &c. and applying same, Lake (*Coleman*), 4230.

**Steam-boiler furnaces.** *See* "Furnaces."

**Steam-boiler gauges.** *See* "Gauges."

**Steam-boiler valves.** *See* "Valves."

**Steam-boilers (cleansing; preventing incrustation in; cleaning tubes):**

Filtering apparatus and compound for, Knab, 53.
Tube cleaners and steel borers for, Gedge (*Renard*), 130.
Purifying feed-water, Baxter, 482.
Cleaning tubes by means of steam, Von Essen, 492.
Sweeping or clearing flues, Sutcliffe, 828.
Purifying feed-water, Smith, 1002.
Metallic brushes or scrapers, Johnson (*Sommer*), 1089.
Preserving interior parts of, Barrett & Rawlings, 1725.
Cleaning tubes and shell; regulating blow-off, Fryer, 1774.
Cleaning tubes of, Mather & Dodge, 2022.
Preventing oxidation of the crown plates in, Waugh, 2256.
Purifying feed-water, Lloyd, 2283.
Preventing sediment in vertical, Johnson (*Lobdell*), 2384.
Composition for, Robinson, 2438.
Tube cleaners (expanding), Collicott, 2476.
Composition for, Day & Osgerby, 2519.
Filtering and purifying feed-water, Beck (*Bidtel*), 2735.
Purifying feed-water to prevent "scale," &c. Betts, 2798.
By condensing and re-using exhaust steam, Russ, 2846.
Scrapers for cleaning, Alley, 3224.
Implements for scraping and cleaning tubes of, Knott, 3240.
Electro-depositing copper in, Unwin, 3403.
Placing agitating "sweeps" or "swabs" in water, Nimmo, 4018.
Purifying feed water, Péne, 4047.
Powder for ("Disincrustant Marseillais"), Deluy, 4108.
Brush for cleaning tubes, Nash, 4193.
Collectors for mud or sediment, Lang, 4378.

**Steam-boilers (generating and superheating steam):**

Combining with furnaces, ovens and kilns, Dudgeon, 20.
Inverted syphon tubes, McNeil & Macgeorge, 51.
Combining drying chambers with, Perry, 55.
Amplifying generating power in, Clark (*Casement*), 69.
Marine "sectional," to save fuel, Davies, 88.
Constructing and arranging marine, Macnab, 127.
Multitubular, for saving fuel, &c., Gedge (*Renard*), 130.
Regulating draught in flues of, Billings & Billings, 137.
Regulating draught in flues of, Lake, 174.
Constructing tram-car, Todd, 225.
Constructing "Cornish," Woods, 262.
Constructing, &c. sectional tubular, Howard & Bousfield, 331.
Applying a coil of pipes, Heyworth & Smalley, 375.
Constructing and arranging tubular, Blake, 396.
With combined air heating attachment, Newton (*Babbitt*), 459.
Combined vertical boiler and engine, Hedges, 463.
Asbestos felt for covering, Hyatt, 478.
Superheating and generating steam, Baxter, 482.
Welding shells of copper, Benson (*Rehbein & others*), 495.
Combined steam or caloric engine heater or, Marchant, 509.
Constructing and arranging locomotive, Adorno, 512.
Producing circulation in the water tubes of, Pendred, 516.
Mastic for coating, Craps & Derihon (*Reintjens*), 529.
Arranging fire-boxes and pipe flues in, Buckingham, 551.
Gaining additional heating surface, Morton, 588.
Flues, cross tubes and shells for saving fuel, Kitchin, 604.
Sectional water tube, Rydill, 637.
Preventing tension of steam in, Johnson (*Harmignies*), 658.
Arrangement of tubes and flues, Vicars & others, 669.
With inclined water tubes, Wilke, 673.
Saving fuel by regulating heat in tubular, Saul & Hird, 744.
Arranging to save fuel, Shaw (*Magoon*), 758.
For gas making, Beck, 766.
For utilising gases and saving fuel, Johnson & Shaw, 847.
Arranging water tubes and water cylinders, Chattorton, 852.
Forging blanks used in constructing, Ashbury, 898.
Sectional water tube, Newton (*Kelly*), 903.
Covering, to prevent radiation, Muratori, 961.
Arranging flues & setting, to save fuel, Hydes & Bennett, 948.
For superheating steam and saving fuel, Harper, 951.
Extension piece for water tubes, Milburn & Jackson, 1006.
Combining with steel melting furnaces, Lewis, 1045.
Constructing, mounting and arranging, Bradbury, 1056.
Apparatus for heating, Jensen (*Erichsen & Maardt*), 1072.
Constructing and heating laterally, Smith & Alexander, 1118.
Seamless "bronze tubes" for, Sumner & Watson, 1120.
Packing for man-hole doors of, Cleghorn & Paterson, 1145.
Fixing copper, &c. ends to steel or iron tubes, McCarthy, 1179.
Increasing heating surface in, Stephenson & Pickup, 1204.
Plugging or stopping tubes, Charlton & Charlton, 1228.
Combining water tubes and stays, Appleby & Cornes, 1284.
Economising heat from furnaces of vertical, Booth, 1295.
Increasing heating surface; saving fuel, Lake (*Renshaw*), 1300.
Construction of sectional, Jackson, 1310.
General construction, Clark (*Harcoll*), 1339.
Drying or superheating steam, Fröhlich & Steffen, 1341.
Preventing priming and saving fuel in, Macdonald, 1375.
Vertical, and air heater for, Millward (*Richardson*), 1387.
Regulating draft in, Johnson (*Denio & Lobdell*), 1409.
Mounting tubes to heat feed-water; saving fuel, Taylor, 1412.
Tube expanders for fixing tubes in plates, Thomson, 1430.
Utilising waste heat from, Mason & Alcock, 1436.
System of pipes and heater, Mann (*Risien*), 1466.
Treating iron wire or strips for boiler plates, Lvoff, 1479.

**Steam-boilers (generating, &c.)—*cont.***

Arranging tubes to avoid priming, &c., Wirth (*Parnall*), 1568.
To prevent priming, Hyde, 1616.
Arranging tubes to increase heating surface, Wilson, 1621.
Fittings, &c. of pure tin for, Barrett & Rawlings, 1725.
Cutting plates for, Dawes & Holt, 1726.
Arranging tubes in and setting, Fryer, 1774.
Combination and arrangement, Vicars & others, 1793.
Arranging vertical tube "economisers," Crosland, 1814.
Applying a generator to air-engines, Nehrlich, 1873.
Connecting float alarm and damper, Sauvée (*Déchamp*), 1917.
Applying "steam tubes" & pipes to save fuel, Readhead, 1942.
Placing on springs to prevent jolting, &c., Russell, 1962.
Mixing gases in, for driving engines, Russell, 1962.
Storing gases in, for driving engines, Russell, 1962.
General construction of land and marine, Russell, 1962.
Arrangement of, & superheating steam, Mather & Dodge, 2022.
Constructing and arranging spherical, Lloyd, 2069.
Constructing and setting tubular, Outram & Horton, 2090.
Packing for, Hammond & Morgan, 2130.
Low-water alarm apparatus, Partridge, 2159.
Flues of, & constructing "Elephant," Sanderson & Co., 2161.
General construction of rectangular, Northcott, 2205.
Increasing draught and water circulation in, Plunkett, 2223.
To raise steam quickly and prevent loss of heat, Plunkett, 2225.
Cylindrical heaters for and arranging, Lloyd, 2283.
Constructing and setting marine, Messrs. Oswald, 2312.
Arranging tubes, flues and water spaces in, Spartali, 2367.
Superheating steam and preventing priming, Spartali, 2367.
Preventing priming in vertical, Johnson (*Lobdell*), 2384.
Constructing vertical tubular, Johnson (*Lobdell*), 2384.
Shaping and rolling wrought metal tubes for, Moore, 2387.
Applying pipes for conveying air to furnaces, Jolly, 2440.
Device for directing circulation in, Abel (*Roberts*), 2516.
With auxiliary superheating boiler, Abel (*Roberts*), 2516.
Cement for coating marine and other, Clark (*Laydet*), 2553.
Combined water tender & locomotive, Oswald & Oswald, 2612.
Applying air-heaters to flues of, for drying, &c., Taylor, 2666.
Coating or covering for parts of, Broughton, 2654.
General construction, Harlow, 2683.
Constructing and setting round tubular, Oswald & others, 2694.
Non-conductor or coating for, Peacock, 2833.
Constructing, to economise heat and fuel, Russ, 2846.
Superheating steam in gas-making, Russ, 2847.
Arranging and fitting tubes; saving fuel, De Pindray, 2876.
Utilising smoke box as heating surface, De Pindray, 2876.
Plugging or stopping tubes, Ley & Shearer, 2911.
Plate caulking tool, Holroyde (*Connery & Holroyde*) 2932.
Superheating steam for furnaces, Powleson, 2959.
Flues for supplying air, Deguine, 2963.
Device for preventing explosion, Hughes (*Barbe & Co.*), 3015.
Or heaters for superheating and generating steam, Walker, 3037.
Forging cylinders for, Whitworth, 3064.
Hanging tubes for, Hald (*Angström & Wiman*), 3093.
Using waste steam to save fuel & water, Jones & White, 3157.
Or heaters of air, steam and caloric engines, Marchant, 3189.
For returning exhausted products to fire, Marchant, 3189.
Constructing and repairing vertical cylindrical, Alley, 3224.
Charging with carbonic acid gas, Cropper, 3238.
Fastening or connecting plates or parts of, Moore, 3244.
Tube brush applicable as a tube stopper, Knott, 3249.
Heat chambers or flues for vertical; saving fuel, Dunlop, 3254.
Domed crown-shaped vertical, Marriott, 3296.
Using waste heat from flues & engine exhaust, Berryman, 3304.
Water circulating and heating apparatus, Berryman, 3304.
Coating interiors of and plates with copper, Unwin, 3403.
Arranging tubes to increase heating surface, Wilson, 3414.
Heating, by waste gases from blast furnaces, Barclay, 3468.
Arranging high pressure, Arnold, 3501.
Combining engines and boilers, Greig & Daniel, 3533.
For combined steam and caloric engines, Clark (*Samuel*), 3534.
Mixing hot-air and gases in water space, Clark (*Samuel*), 3534.
Utilising heat and preventing priming, Clark (*Samuel*), 3534.
Vertical cylindrical, Matthews, 3586.
Refractory cement or plaster for coating, Horne, 3661.
Fitting tubes in, to increase heating surface, Foden, 3662.
Arranging "coils" in flues to economise fuel, Bell, 3777.
Coating composition to save fuel and heat, Stone, 3861.
Generating steam by the use of metal heaters, Weston, 3914.
Tubes or receptacles for placing heaters in, Weston, 3914.
Using tank furnaces for generating steam, McAdam, 3949.
Raising steam in tank glass furnace bridges, McAdam, 4038.
Superheating steam and utilising waste heat, Péne, 4047.
Boiler cylinders and water tubes, Brewer (*Bergrœn*), 4109.
Saving fuel in vertical tubular, Brewer (*Bergrœn*), 4109.
Safety holes and plates, Cullen, 4186.
Arranging land and marine; superheating steam, Regan, 4254.
Arranging "economizer" pipes, Prestwich & Pimbley, 4255.
Seamless boiler flues, Newton (*Brooks*), 4244.
Fitting and protecting tubes, Walker (*Paukack*), 4254.
Placing a boiler and fire in upper part of marine, Bovill, 4254.
Producing circulation of water in, Weir & Weir, 4332.
Causing circulation of water in marine and other, Lane, 4378.
Arranging smoke stack of, Cheesbrough (*Ford*), 4381.
Air superheating device for, Cheesbrough (*Ford*), 4381.
Arranging air-pipes or flues in, Cheesbrough (*Ford*), 4382.

**Steam-boilers (generating, &c.)—*cont.***

Waterlevel regulator for, Hopkinson & Hopkinson, 4405.
Steam pressure regulator for, Hopkinson & Hopkinson, 4405.
Removable covering for, Hopkinson & Hopkinson, 4405.
Stationary, with separate bodies, Bonneville (*Artigs*), 4418.

**Steam-boilers (water-feeding; heating feed-water):**

Regulating supply of water to, Clark (*Casement*), 70.
Injectors, Budenberg (*Schäffer & Budenberg*), 327.
Heating and purifying feed-water, Baxter, 482.
Furnace sides used for heating, Wilke, 672.
Heating by exhaust steam, Shaw (*Magoon*), 758.
Condenser tank employed for, Johnson & Shaw, 847.
Tubes and hollow fire-bars for heating, Chatterton, 852.
Feed-water heater or condenser, Northcott, 944.
Purifying feed-water, Smith, 1002.
Hollow fire-bars, bridges and boxes for, Dawber, 1070.
Injectors, Webb, 1135.
Self-acting feed cistern, Hunter, 1222.
Heating feed, Greenslade, 1241.
Tubes and stays for water heaters, Appleby & Cornes, 1284.
Automatic feeder; heating feed-water, Lake (*Renshaw*), 1300.
Heating feed-water, Taylor, 1412.
Heating feed-water, Mason & Alcock, 1436.
Heating feed-water, Mann (*Risien*), 1466.
Heating feed and feeding by steam jets, Sanders, 1522.
Heating by exhaust steam, Broadbent, 1535.
Injectors or ejectors, Hunt (*National Tube Works Co.*), 1647.
Feed-water heater, Hunt (*National Tube Works Co.*), 1647.
Heating feed-water, Fryer, 1774.
Heating feed-water, Crosland, 1814.
Heating feed-water, Smith, 2148.
Automatic feeding apparatus, Wise (*Yagn*), 2155.
Automatic water-feeder, Partridge, 2159.
Heating feed-water, Lloyd, 2283.
Feed-water heater, Spartali, 2367.
Apparatus for heating feed-water, Fearns & Jackson, 2481.
Filters for purifying water, Wise (*Le Tellier*), 2496.
Combined boiler and feed heater, Oswald & Oswald, 2612.
Filtering and purifying apparatus, Beck (*Bidlet*), 2735.
Treating water chemically before feeding, Betts, 2798.
Condensing and using exhaust steam for, Russ, 2846.
Heating feed-water by multitubular heater, Lyttle, 2930.
Injectors, Holt, 3226.
Combined water-feeder and cut-off regulator, Holt, 3227.
Heating and filtering feed-water, Berryman, 3306.
Mechanical water-feeder, Haseltine (*Woods*), 3428.
Condensing steam to be used as feed-water, Körting, 3507.
Heating feed-water around smoke box, Matthews, 3586.
Governors for controlling supply, Newton (*Jenkins*), 3596.
Injectors, Johnson (*Vabe & Cuau*), 3807.
Arranging "coils" in flues for heating feed, Bell, 3777.
Heating and superheating feed-water, Cook, 3890.
Heating water in tender by waste steam, Weston, 3914.
Feeding, heating and purifying feed-water, Péne, 4047.
Condensing steam for, Lacordaire (*Fourlinnie*), 4168.
Heating feed-water, Prestwich & Pimbley, 4235.
Water-meter and automatic feeder, Verdier (*Macabies*), 4290.
Actuating feed pumps, Owthwaite, 4349.
Heating feed-water, Speir & Mather, 4386.

**Steam-breaks.** *See* "Breaks for railways."

**Steam-engine condensers.** *See* "Condensers."

**Steam-engine cylinders.** *See* "Cylinders."

**Steam-engine governors.** *See* "Governors."

**Steam-engine pistons.** *See* "Pistons."

**Steam-engine valves.** *See* "Valves."

**Steam-engines (locomotive, marine and stationary):**

Combined high & low pressure, Haseltine (*Jones & Pauly*), 35.
Rotary, Bousfield (*Manley*), 58.
Combined steam & hydraulic engine to save fuel, Mansley, 78.
Cushioning pistons and arranging ports of, Hooker, 203.
Tram-car locomotives, Todd, 225.
Applying thermo-electricity to, Monckton, 265.
Obtaining additional power from waste steam, Walker, 286.
Combined vertical boiler and engine, Hedges, 463.
Combining steam and gases in, Baxter, 482.
General construction, Kayser (*Schultz*), 488.
Working expansively, Blackburn & Blackburn, 507.
Combined air, steam and caloric, Marchant, 509.
Locomotive for central rail railways, Adorno, 512.
Mastic for coating, Crape & Derihon (*Reintjens*), 529.
Preventing air suction in, Johnson (*Harmignies*), 658.
Preventing steam tension in, Johnson (*Harmignies*), 658.
Diminishing friction in working, West, 662.
Gearing for operating valves, Messrs. Hulme, 704.
Rotary, where counter thrust is required, Teulon, 706.
Arranging exhaust pipes of locomotive, Shaw (*Magoon*), 758.

**Steam-engines—*cont.***

Rotary, Griffin, 771.
Tram-car locomotives, Jensen (*Köhl*), 797.
Rotary, Haseltine (*Mc Gee & Risher*), 807.
Rotary and reciprocating, Teulon, 939.
Constructing and arranging compound, Alliott, 942.
General construction, Northcott, 944.
Combined steam and air, Harper, 951.
Three cylinder, without slide valves, &c., Willans, 974.
Method of reversing three cylinder, Willans, 974.
Rings for glands, Moy, 977.
Gearing for operating valves, Dack, 1025.
Working expansively, Van Waeyenberch, 1039.
Cushioning pistons of, Benson (*Cope & Maxwell*), 1086.
Securing road wheel axles of, Clayton & Shuttleworth, 1142.
Double cylinder and compound, Lake (*Nobles*), 1201.
Smoke box of steam ploughing engines, Greenslade, 1241.
Rotary, Bousfield (*De Brockofsky*), 1247.
Blast and exhaust pipes of, Hald (*Hoff & Adamsen*), 1351.
Varying gear for "cut off" of, Messrs. McNaught, 1388.
Starting and avoiding dead centres in, Spencer & Inglis, 1413.
Parallel motion for guiding piston rods, Hayden, 1477.
Spark arresters, Cheesbrough (*Baschwitz*), 1503.
Spark arresters, Johnson (*Holmes*), 1519.
Reducing back pressure in cylinders, Sanders, 1522.
Tram-car locomotives, Todd, 1533.
Oscillating, for operating cranes, hoists, &c., Herring, 1641.
Percussive engines, Darlington, 1724.
Arranging, &c. parts of vertical compound, Dawes & Holt, 1728.
Variable expansion gear, Johnson (*Correy*), 1740.
Two piston and one cylinder, Newton (*Wells*), 1781.
Arranging and packing parts of rotary, Newton (*Gallahue*), 1796.
Liquid meters to be used as, Alexander (*Schmid*), 1799.
Oiling slides or slide bars of, Oclee & Woodcock, 1806.
Guiding locomotives running on single rails, Smith, 1849.
Combined air and, Nehrlich, 1873.
Packing for stuffing-boxes and joints of, Kirkman, 1896.
Cutting-off steam in locomotives, Van der Mey (*Ansingh*), 1963.
Servo-motors for starting, &c., Clark (*Farcot & others*), 1934.
Fitting axle-boxes to frames of, Dobson, 1956.
Combining fuel gases and steam for working, Russell, 1962.
Without pipes, "Asolens engine," Soul (*Hartog & Co.*), 2037.
Compound, for canal boats, &c., Newton (*Baxter*), 2050.
Fixing wedges in connecting rods, Smith & Whittaker, 2105.
Packing for, Hammond & Morgan, 2130.
Producing draft in chimneys of, Gedge (*Chevallier*), 2176.
Arranging ports of compound, Coxon, 2193.
Expansion gear and actuating same, Shuttleworth, 2263.
Reciprocating for running at high speed, Anderson, 2268.
Preventing dust & soot entering steam chests, &c., Ward, 2297.
Combined air-valve and lubricator, Ward, 2297.
Steering gear for marine, Bremme, 2361.
Arranging steam passages to work expansively, Walker, 2371.
Applying cylinders, for working air breaks, Harding, 2381.
Rotatory, Kaulbach, 2417.
Combined blower, pump and engine, Mackenzie, 2428.
Testing cranked shafts of, Handyside & Alley, 2455.
Direct-acting compound, Field & Cotton, 2474.
Double expansion compound, Field & Cotton, 2474.
Grouping marine-engine cylinders, Hunt (*Nillus*), 2491.
Valve-boxes, serving as steam chests, Hunt (*Nillus*), 2491.
Double exhaust to avoid back pressure, Abel (*Roberts*), 2516.
Working by combined steam and air, Abel (*Roberts*), 2516.
Arranging locomotive frame-work, Jensen (*Asplund*), 2522.
Inverted compound, Spencer & Inglis, 2529.
Rotary variable expansion, Higginson, 2552.
Cement for coating steam chests, Clark (*Leydet*), 2555.
Making, &c. detachable ports for, Newton (*André*), 2570.
Supplying steam to, at boiler pressure, Kirby & Kirby, 2607.
Combined locomotive & water tender, Oswald & Oswald, 2612.
For steam heating apparatus, Clark (*Bradford*), 2648.
Arranging ports and their connecting tubes, Higham, 2657.
Arranging parts to obviate dead centres, Bernays, 2674.
Quilted fabric for covering, Gedge (*Gaudefroy*), 2733.
Arranging ports in cylinder trunnions, Scott (*Haag*), 2758.
Oscillating, for either steam or water, Scott (*Haag*), 2758.
Steam-pipe valve indicator, Lake (*Muchin*), 2761.
Arranging "steam accumulators," Brown, 2805.
Reversing gear for marine and other, Mc Glasson, 2845.
Steam tram-cars, Fidler & Cockburn-Muir, 2890.
Constructing and arranging gear of marine, Spartali, 2900.
Arranging ports of and reversing gear for, Knowelden, 2901.
Ejectors for exhausting air in working breaks, Smith, 2950.
Raising water into locomotive tanks, Smith, 2950.
Rotary and reversing rotary marine, Sudlow, 2962.
Variable cut-off, for rotary expansive, Sudlow, 2962.
Rotary, Milne, 2990.
For working with superheated steam, Waller, 3017.
High pressure condensing, Waller, 3017.
Reciprocating, Barlow (*Turrettini & Collados*), 3038.
Employing "mica," &c. as a packing, Talling & Seccombe, 3048.
Scroll disc rotary, Cooper, 3082.
Transmitting motion from, Morgan-Brown (*Chamberlain*), 3110.
Combined air, steam and caloric engine, Marchant, 3189.
Generating gaseous fuel for heating, Marchant, 3190.
Rotary, Smith (*Smith*), 3190.

**Steam-engines—*cont.***

Single expansive condensing and other, Holt, 3227.
Combined steam and carbonic acid gas engine, Cropper, 3238.
Exhaust apparatus for regulating draft, Clark (*Gregory*), 3258.
Varying cut-off mechanism, Messrs. McNaught, 3264.
Employing two revolving pistons in rotatory, Pinhey, 3267.
Spark-extinguishers for straw-fuel, Hornsby & Scott, 3294.
Rotary marine and other, Allix, 3315.
Reciprocating, for rock drills, hammers, &c., Edwards, 3342.
Frames or supports for reciprocating, Edwards, 3342.
For working air compressors, Benson (*Cope & Maxwell*), 3361.
Arranging steam passages and cut-off in, Browne, 3373.
Arranging two cylinder compound marine, Rankin, 3393.
Oiling slides or slide-bars of, Woodcock, 3423.
Portable or self contained horizontal, Craig & others, 3494.
Portable, &c. working expansively, Richardson, 3503.
Shutting off steam, in railway signalling, Salomons, 3515.
Variable exhaust, for locomotives, Hood (*Stewart*), 3516.
Semi-portable for winding, hauling, &c., Greig & Daniel, 3535.
Combined steam and caloric engine, Clark (*Samuel*), 3536.
Reversing and working expansively, Rawlings, 3618.
Arranging and working valves in, Parker & Weston, 3658.
Direct-acting compound, Hooker & Browne, 3661.
Link-motion for, Clark (*Sandall*), 3677.
Rotary, Haseltine (*Works & Todd*), 3682.
Regulating draft in locomotive, Lake (*Cooke & Foss*), 3712.
Spark arresters for locomotive, Lake (*Cooke & Foss*), 3712.
Regulating degree of expansion in, Dubs, 3737.
Reversing gear for locomotive and other, Dubs, 3737.
Variable cut-off motion, Wilson (*Herbillon*), 3763.
Using exhaust for working condenser pump, Holman, 3768.
Working pistons, &c. of portable, Hughes, 3787.
Steam tram-cars, Perrett, 3839.
Variable cut-off, Earnshaw & Holt, 3841.
For driving centrifugal and like machines, Fletcher, 3844.
Avoiding back pressure in locomotive, Cook, 3890.
Using waste heat of locomotives to save fuel, Cook, 3890.
Fitting hauling or winding tackle to portable, Yull, 3899.
Compound, Shawcross (*Shawcross*), 3911.
Raising steam for locomotive without firing, Weston, 3914.
Variable expansion and cut-off gear, Dack, 3922.
For working hydraulic presses, Dack, 3922.
Adapting locomotive for winding, &c., Stevenson & Reid, 3939.
Rotary, Louche, 3961.
Casting intervening casing of cylinders, Hughes, 3976.
Combined crane and locomotive, Reid, 4001.
Varying valve gear and cut-off for rotary, Mills (*Teal*), 4035.
System of steam distribution and exhaust, Péne, 4047.
Regulating and varying cut-off, Péne, 4047.
Converting rectilinear into circular motion in, Péne, 4047.
Arranging locomotive framework, Jensen (*Asplund*), 4048.
Bogie for hind part of locomotives, Jensen (*Asplund*), 4048.
Exhaust apparatus of combined, Haseltine (*Jones*), 4053.
Variable cut-off for and saving fuel in, Dugard, 4126.
Making "gaskin" or engine packing, James, 4261.
Compound marine, Johnson (*Reaney*), 4318.
Working; without connecting rods, &c., Owthwaite, 4349.
Variable expansion, Paget (*Wannieck & Köppner*), 4354.
Producing circular motion without cranks, Greey, 4357.
Arranging parts of, to save steam, Wainman & Holmes, 4391.
Break mechanism for locomotive, Kitson & Batchelor, 4411.
Arranging bogies of locomotive, Kitson & Batchelor, 4411.
Road locomotives, Bonneville (*Havard*), 4417.
For compressing & conveying air, Bonneville (*Havard*), 4417.
Expansion gear, Woods, 4434.
Utilizing exhaust, Comte de Beaurepaire de Louvagny, 4450.
Compound reciprocating, Clayton & others, 4455.
Cushioning pistons of, Haseltine (*Hodge*), 4464.
Oscillating valveless, Haseltine (*Wardwell*), 4466.

**Steam-hammers.** *See* "Hammers."

**Steam-pumps.** *See* "Pumps."

**Steam-traps.** *See* "Valves (steam)."

**Steam-winches.** *See* "Hoists."

**Stearine.** *See* "Oils (animal)."

**Steel, steelifying iron.** *See* "Smelting."

**Steel & iron ware (rendering passive).** *See* "Oxidation."

**Steering aërial machines.** *See* "Aërial machines."

**Steering and guiding ships and boats:**

Indicating position of rudder, Westrup, 39.
Compressed air or steam apparatus, Powlett, 390.
By fluid pressure, Beaumont, 392.
Adjusting stern posts and rudders, Middleton, 409.
Auxiliary rudders, Clark (*Lo Forte & Quintaralle*), 593.
Auxiliary propeller for, Lutschannig, 1008.
By propellers resembling oars, Keddy, 1263.
Placing the rudder at the stem or fore end, Hart, 1340.
Adjusting stern posts and rudders, Middleton, 1470.

**Steering and guiding ships—*cont.***

Oscillating steam-engine for, Herring, 1841.
Rudders for screw vessels, Newton (*Sohlick*), 1868.
Windlasses or drums for, Clark (*Parcot & others*), 1934.
Constructing steering propellers, Hughes (*Mallory*), 2227.
Increasing leverage in, and working tillers, Watson, 2321.
Valve motion for working steam steering gear, Bremme, 2361.
Steam steering apparatus, Beaumont, 2424.
Arranging vanes or paddles for, McNaught, 2462.
Double bladed "sliding" rudder, Bingham, 2576.
Self-acting lever machine or motive-power for, White, 2602.
Preventing accidents to rudders, &c. by waves, Lister, 2662.
By employing paddle wheels or apparatus, Macaulay, 2763.
Scoop shaped rudders, Blake & Tompkins, 3169.
Working rudders in steering war and other vessels, Cook, 3371.
Shipping, unshipping and securing boat rudders, Little, 3468.
Moving rudders over given angles, Grenfell & Newman, 3607.
Screw steam barges or vessels, Byrne, 3657.
Constructing & applying rudders at sea, &c., Commerell, 3669.
Giving or recording the course, Thompson & Kimberley, 4291.
Splints, &c. for repairing rudders, Tongue (*Devrido*), 4361.

**Stench traps.** *See* "Traps."

**Stencil plates:**

Forming a porous paper "stencil," De Zuccato, 1078.
Using, with distemper color for producing designs, &c., Lee, [1197.
Using, with gelatine for producing designs, &c., Lee, 2223.
Using, for printing on fabrics, Engetsdorff, 3144.
Forming a porous paper "stencil," De Zuccato, 3159.

**Steps and bolsters.** *See* "Bearings."

**Steps and stair treads.** *See* "Buildings."

**Stereo-graphoscopes.** *See* "Optical instruments."

**Stereoscopes.** *See* "Optical instruments."

**Stereotype plates (mounting).** *See* "Printing."

**Stills.** *See* "Boilers (miscellaneous)."

**Stirring.** *See* "Mixing."

**Stirrups.** *See* "Harness."

**Stitching or sewing.** *See* "Sewing."

**Stockings (darning).** *See* "Sewing."

**Stockings or hose.** *See* "Knitting."

**Stocks and dies.** *See* "Screws."

**Stokers (mechanical).** *See* "Furnaces."

**Stone, marble and slate:**

Combined foul lime, &c. in making artificial stone, Forbes, 34.
Polishing machinery for, Holmes, 68.
Artificial stone pipes, Fottrell, 77.
Artificial stone vats, &c., Jensen (*Erichsen & Edwards*), 138.
Cutting, dressing and moulding, Thompson, 275.
Compressing and moulding artificial stone, Hahn, 369.
Employing asbestos in making artificial stone, Hyatt, 478.
Artificial marble and stone; lithographic stones, Deldon, 525.
Cutting and dressing, Hindley, 526.
Waterproof mastic for coating, &c., Bagean, 649.
Ornamenting, by fixing copper in, Hubmann, 825.
Dressing millstones, Sears (*Chisholm, Bros.*), 846.
Composition for coating or preserving stone, Muratori, 951.
Dressing, cutting, shaping & finishing stone, Lake (*Gear*), 989.
Dressing millstones, Haseltine (*Larer & Griscom*), 1129.
Anti-fouling composition or paint for, Jones & Howatson, 1172.
Dressing for, Warsop & Hill, 1181.
Breaking and crushing stones, Smith & Smith, 1186.
Breaking or crushing stones, Anduse, 1236.
Combining fibrous materials with concrete, &c. ("Lignolithite," ["Fibrolithite," and "Flexo-lithite"), Brannon, 1266.
Metallic artificial paving stone, Chomé-Steinbach, 1329.
Shaping and dressing stone by heat, Werdermann, 1438.
Producing "pictoliths" or stone pictures, Brannon, 1472.
Cutting and dressing stone, Jordan, 1494.
Ornamenting parian, Brock, 1562.
Percussive machinery for breaking stone, Clark (*Chenet*), 1676.
Sawing granite, marble and stone, Cox, 1696.
Nibs or cutters for saws and dressing tools, Macintosh, 1714.
Percussive engines for breaking and dressing, Darlington, 1734.
Artificial stone, Wise (*Preusser*), 1763.
Artificial stone, Ransome, 1821.
Crushing and breaking stone, Marsden, 1937.
Dressing millstones, Haseltine (*Dean & others*), 2091.
Artificial fibrous for fire-proof safes, &c., Brannon, 2023.
Artificial stone, Mc Grigor (*Robertson*), 2047.
Making and applying "Felted stone sheeting," Brannon, 2128.
Constructing millstones, Aubin, 2184.

**Stone, marble and slate—*cont.***

Preserving ("Prophylactic composition"), Burrell, 2248.
Making, from residue of alum works, Beatson, 2272.
Staff for gauging millstone surfaces, Partridge, 2365.
Making, for buildings, floors, linings, &c., O'Friel, 2500.
Crushing, for concrete making, Le Mesurier, 2594.
Hardening substances for making cutters, Macintosh, 2945.
Stone breakers, Goodman, 2993.
Composition for and making artificial marble, Deane, 3007.
Artificial marble or stone, Roettger, 3008.
Fitting bed-stones in cement and other mills, Howe, 3042.
Cementing lithographic stones, Gedge (*Mayoux*), 3078.
Sheets and plates for holding marbles or stones, Hyatt, 3171.
Cutting, working or operating on, Thompson, 3368.
Factitious paving stone, Chomé-Steinbach, 3520.
Breaking or crushing stones, Burge & Hall, 3696.
Working hydraulic stone breakers by steam, &c., Johnson, 3769.
Grinding and polishing stone objects, Lake (*Volk*), 3806.
Artificial stone, pipes, &c. Oppenheimer (*Hirsch*), 3884.
Artificial stone, Ransome, 3926.
Hardening artificial stone blocks, tiles, &c., Sellars, 4195.

**Stone (quarrying).** *See* "Mining."

**Stoneware.** *See* "Earthenware."

**Stools.** *See* "Furniture."

**Stop cocks.** *See* "Cocks."

**Stop-motions:**

Throwing out of gear in nail cutting machines, Wormald, 337.
In weaving Paisley shawls, &c., Sowden & Stephenson, 863.
For feed motion of double lap machines, Bickerton, 912.
Throwing reels out of gear in gassing yarns, Rhodes, 1073.
For winding and doubling frames, Unsworth, 1268.
In machinery for cleaning yarns, Mewburn (*Sée*), 1298.
For twisting machinery, Lumb, 1319.
For "ring twisting," Midgley (*Cockcroft & Ackroyd*), 1364.
Preventing "traps" in looms, Shaw & others, 1462.
Weft stop mechanism, Clark (*Nuttall & others*), 1539.
For combing machines, Lohren, 1706.
For bronzing or powdering apparatus, Crosland, 1833.
Knocking-off motion for looms, Heald, 1864.
For printing machine impression cylinders, Nicholls, 2005.
Self-acting, for looms, Lang & others, 2143.
For thread polishing machines, Weild, 2226.
For warping or beaming machines, Walmsley & Walmsley, 2332.
For looms, when shuttles fail to "box," Cooke & others, 2477.
For small-ware looms, Johnson (*Burlock*), 2584.
For narrow fabric looms, Pearson, 2789.
For sewing and other treadle machines, Wright, 2903.
For looms, Portway, 2922.
For coilers of drawing frames, in spinning, &c., Smith, 2981.
For mail or heald knitting machines, Carr, 3313.
For narrow fabric looms, Burlock (*Chapman*), 3350.
For thread carrier bars in knitting frames, Cotton, 3409.
Self-acting, in winding two or more yarns, &c., Rostron, 3576.
Universal weft stop mechanism, Morgan-Brown (*Capen*), 3649.
For Jacquard looms, Broadbent, 3752.
For shuttles and weft in looms, Stone (*Switzer*), 3860.
For looms with moveable "nogs," &c., Smith & others, 3898.
For paper bronzing machines, &c., Crosland, 4023.
For looms, Murdoch (*Lejeune-Vincent*), 4039.
For winding frames, Stubbs & Corrigan, 4061.
For winding frames, Boyd & Boyd, 4119.

**Stoppers for bottles.** *See* "Bottle stoppers."

**Stoppers for jars.** *See* "Jars."

**Stopping or plugging tubes.** *See* "Pipes."

**Stopping or restraining horses.** *See* "Harness."

**Stopping teeth.** *See* "Dentistry."

**Stopping trains.** *See* "Breaks for railways."

**Storehouses.** *See* "Buildings."

**Storing gunpowder.** *See* "Magazines."

**Stoves.** *See* "Fire-places."

**Stoves (regenerative hot blast).** *See* "Furnaces."

**Straining.** *See* "Filtering."

**Straining fence wires.** *See* "Fences."

**Straps:**

Friction buckles for, Dethiou, 542.
Using wire in sewing, Clark (*Bourdais*), 1048.
Buckles for, Sterne, 1965.
Metallic trace and kicking, for horses, mules, &c., Singer, 2012.
Slip buckle or link for, Clayton (*Owen*), 3050.
Encasing strips of metal, &c. in, Ingram, 3154.

**Straps—*cont.***

Of combined india-rubber, wire gauze, &c., Ingram, 3437.
Connecting harness, Sampson, 4099.
Joining or connecting leather or other, Lake, 4432.

**Straps or belting.** *See* "Bands."

**Straw elevators or stackers.** *See* "Stacking."

**Straw hats.** *See* "Hats."

**Straw shakers.** *See* "Thrashing."

**Street name indicators.** *See* "Sign, &c."

**Street-sweeping machines.** *See* "Roads."

**String and twine.** *See* "Ropes."

**Stringers.** *See* "Beams, &c."

**Stripping or scutching flax.** *See* "Spinning."

**Strong rooms and safes.** *See* "Safes."

**Strontia:**

Salts, carbonates, &c. of, Hughes (*Daudenart & Verbert*), 911.
Caustic, Hughes (*Daudenart & Verbert*), 911.
Revivifying, Hughes (*Daudenart & Verbert*), 913.

**Studs and solitaires.** *See* "Buttons."

**Studs or nails.** *See* "Nails."

**Stuffing-boxes:**

Lining or packing, Testud de Beauregard, 1069.
Asbestos packing for, Cleghorn & Paterson, 1145.
Bush for piston and pump rod, Angus & Hammersley, 1743.
Packing for, Kirkman, 1896.
For gaseliers, Harrington & Brent, 2554.
Metallic packing for, Hunt (*Richards & others*), 2967.
Employing "mica," &c. as a packing, Talling & Seccombe, 3046.
For rotary steam-engines, Haseltine (*Works & Todd*), 3682.
Metallic lubricating packing for, Péne, 4047.

**Submarine lights.** *See* "Lamps."

**Submarine telegraphs or cables.** *See* "Telegraphs."

**Submarine works:**

Anti-fouling and protective composition for, Blair, 235.
Submerging apparatus for, Mills (*Rocco & Pautrier*), 1405.
Excavating for cylinders or foundations, Hunter, 1741.
Pump for excavating sand, &c. for foundations, Kennard, 1815.
Rock drills for, and operating same, Sturgeon & White, 2085.
Constructing and preparing foundations for, Hunter, 2097.
Shoes or curbs for foundations to rest on, Hunter, 2097.
Pontoons for submarine engineering works, Darley, 2782.
Coffer-dam apparatus for, Hughes (*Wennmackers*), 2933.

**Subsoiling.** *See* "Tilling."

**Subways or tunnels.** *See* "Tunnels."

**Suction hose.** *See* "Pipes."

**Sugar and syrups:**

Filtering beet root syrup, Deny, 16.
Obtaining potash from residuum, Murdoch (*Lesage*), 97.
Crushing refined, Cole, 181.
Crystallising, Monckton, 265.
Vacuum pans, Harrison & others, 537.
Filtering, Piver, 634.
Removing lime from saccharine solutions, Stenhouse, 652.
Motor for operating nippers, Robinson, 717.
Draining and drying, Lafferty & Lafferty, 755.
Drying bone black used in refineries, Clark (*Farley*), 876.
Mill, &c. for crushing sugar canes, Buchanan, 895.
Revivifying animal charcoal, Denton, 1130.
Apparatus for making, Henry (*De Méritens & Kresser*), 1132.
Devices for evaporating in making, Lake (*Renshaw*), 1300.
Covering furnace used in making, Mann (*Rision*), 1466.
Drying-up bagasse, Bonneville (*Rampont*), 1561.
Fuel-saving furnace for heating pans, De Pindray, 1719.
Making and refining, Johnson (*Manoury*), 1736.
Drying and cooling crystals, Alliott & Fryer, 1773.
Draining and drying, Hepworth & Paulding, 1798.
Purifying and colouring, Duncan (*Weinrich*), 1870.
Centrifugal filtering machines, Johnson (*De Loynes*), 1916.
Removing glucose from sugar and cane juice, Duncan, 1969.
Revivifying animal charcoal, Crosfield & others, 2024.
Extracting juice from canes, &c., Hunt (*Reynoso*), 2255.
Crushing refined, Cole, 2456.
Producing sulphite of lime for, Henry (*Faucheux*), 2483.
Utilising residues from, Henry (*Faucheux*), 2483.
Decolorising and purifying juices and, Whitthread, 2532.
Solutions for revivifying charcoal, Whitthread, 2532.

**Sugar and syrups**—*cont.*

Purifying syrups, Monckton, 2581.
Refining sugar loaves simultaneously, Wirth (*Langen*), 2606.
Closed vessels for making, Hunt (*Lionarous & Prass*), 2693.
Making in a continuous manner, Hunt (*Lionarous & Prass*), [2693.
Defecating saccharine solutions, Johnson (*Marot*), 2713.
Preparing and moulding loaf sugar, Abel (*Langen*), 2734.
Centrifugal machine or hydro-extractor, Müller, 2773.
Centrifugal machines for treating, De Mornay, 2787.
Extracting juice from bagasse, Chenaillier, 2791.
Evaporating cane juice, Espeut, 2825.
Expressing juice from sugar cane and beet-root, Espeut, 2826.
Furnaces for heating pans, Blazicek & Bauer, 2978.
Steam clarifiers and pans, Watson & Robertson, 2980.
Making cakes of, ready for stoving, Martineau, 3027.
Mill or multiple-cylinder press, Hunt (*Lahaye & others*), 3071.
Evaporating saccharine solutions, Espeut, 3295.
Purifying solutions of, Gill & Martineau, 3332.
Removing potash from solutions of, Gill & Gill, 3333.
Cleansing and revivifying animal charcoal, Whitthread, 3343.
Moulding granular sugar into cubes or blocks, Parts, 3435.
Crushing sugar-cane, Patterson, 3485.
Centrifugal machines for treating, Newton (*Donner*), 3553.
Moulds for and moulding, Newton (*Donner*), 3553.
Charging and discharging charcoal filters, Espeut, 3589.
Condensing steam from vacuum pans, Low, 3638.
Converting starch, &c. into glucose and caramel, Manbré, 3639.
Preparing syrups in vacuo, Edwards (*Freeland*), 3766.
Breaking lump sugar, Alexander (*Ménier*), 3814.
Centrifugal machines and juice pumps, Fletcher, 3844.
For brewing, wine and vinegar making, &c., Garton, 3950.
Saturating and double treating cane, Risien (*Russell*), 4094.
Clarifying cane juice, Hunt (*Girdwood*), 4153.
Regulating steam pressure in making, Wise (*Coignet*), 4325.
Obtaining black for discolouring, Knab, 4421.
Moulding raw sugar into cakes or tablets, Charpentier, 4428.
Covering sugar loaves to prevent waste, &c., Pulsford, 4442.

**Sugar basins:**

Invisible springs for covered, Zalkind, 742.
Moulding and pressing glass basins, Haley, 1927.

**Sulphate and sulphite of lime.** *See* "Lime."

**Sulphate of alumina.** *See* "Alumina."

**Sulphates and sulphites (alkaline).** *See* "Alkalies."

**Sulphates of iron, copper, &c.** *See* "Metallic salts."

**Sulphur:**

Separating, by chemical agents, Johnson, 19.
From foul or refuse lime of gas works, Forbes, 1391.
Obtaining, from chemical agents, Henry (*Faucheux*), 2463.
Extracting and treating, Wilkes & Aunier, 3067.

**Sulphuret of carbon.** *See* "Bisulphide of carbon."

**Sulphuretted hydrogen.** *See* "Gas."

**Sulphuric acid.** *See* "Acids."

**Sunk devices (producing).** *See* "Engraving."

**Sunken rocks (removing).** *See* "Rocks."

**Sunken vessels (raising).** *See* "Ships."

**Sunlights.** *See* "Lamps."

**Sunshades.** *See* "Umbrellas."

**Superheating steam.** *See* "Steam-boilers."

**Supplying water to closets.** *See* "Water-closets."

**Surgery; surgical instruments:**

Tape plasters or bandages, Smith, 211.
Friction buckle for bandages, Dethiou, 542.
Artificial tympanum, Giampietro, 1010.
Magnetising trusses, splints, pads, &c., Darlow, 1121.
Barrel or case for lancets, Staniforth, 1274.
Appliance for rectal diseases, Lake (*Ludlow*), 1399.
Making zinc and other splints, Guillery, 1447.
Waterproof material for surgical purposes, Joyes, 1812.
Substitute for ice for surgical purposes, Coles, 1848.
Magnetising trusses and bandages, Lyon, 1954.
Compress or "lichenized wadding," Lake (*Lelièvre*), 2149.
Ligature or "lichenized wadding," Lake (*Lelièvre*), 2149.
Safety pin fastener for bandages, Pulvermacher, 2172.
Vaginal injection canula, De Savignac, 2279.
Urethra syringes, Haseltine (*Walsh*), 2288.
Vaginal speculum, Pape, 2634.
Perforated plasters and bandages, Chandler & Southan, 2703.
Trusses, Porter, 2947.

**Surgery; surgical instruments**—*cont.*

Coating lint used for water dressing, Silvester, 2234.
Applying electricity in, Lake (*Lambrecht & Wippern*), 25[illegible]
Closing instrument or forcep, Imray (*Boris*), 2487.
Instruments, &c. of "nickelised" iron, Monckton, 3369.
Artificial palates or obturators, Johnson (*Peyer*), 4123.
Lighting apparatus for use in operations, Stewart, 4173.
Subcutaneous injection syringe, Wirth (*Leiter*), 4192.
Needle for use in, Oppenheimer (*Jenkins*), 4430.
Litholycites, Clark (*Bradford*), 4491.

**Surveying instruments.** *See* "Mathematical."

**Suspenders for dresses.** *See* "Dresses."

**Suspenders for ticketing goods.** *See* "Tickets."

**Suspenders or bearers:**

For supporting tubes, rods, wire, &c., Entwistle, 2298.

**Suspenders or braces.** *See* "Braces."

**Suspending clothes.** *See* "Wearing-apparel."

**Swaging metals.** *See* "Forging."

**Sweeping flues.** *See* "Flues."

**Sweeping streets.** *See* "Roads (cleansing)."

**Sweetmeats.** *See* "Confectionary."

**Swimming; imparting buoyancy:**

Jacket or waistcoat for ("The Natateur"), Gosselin, 814.
Belt, Count de Goddes de Liancourt, 909.
Propellers for bathers ("Velocifin"), Hollins, 2154.
Apparatus for teaching, Levett, 2673.
Costume for, ("The Natateur"), Gosselin, 2679.
Inflated waterproof sleeves for, Lake (*Tryon*), 2785.
Self-inflating belt, Count de Liancourt, 3599.
Apparatus for teaching, Levett, 4461.

**Swings.** *See* "Games."

**Switches and points.** *See* "Railways."

**Swords:**

Sword-bayonet and intrenching tool, Burton, 884.
Sword-bayonet, Hughes (*Chillingworth*), 1433.

**Syringes:**

For watering, Robins, 23.
Vaginal injection canula, De Savignac, 2279.
Urethra, Haseltine (*Walsh*), 2288.
For subcutaneous injections, Wirth (*Leiter*), 4192.

**Syrups.** *See* "Sugar."

## T.

**Table covers:**

Embroidering and ornamenting, Heaven, 446.
Weaving toilet and, Shaw & others, 1462.
Substitute for table cloths, Rowan & Reid, 1567.
Ornamenting or embroidering, Rigby, 3140.
Treating reversible fabrics for, Wilkinson, 4026.

**Table mats.** *See* "Mats."

**Tables.** *See* "Furniture."

**Tablets (show).** *See* "Sign plates."

**Tacks and nails.** *See* "Nails."

**Tallow:**

Rendering, purifying and bleaching, Miller (*Brown*), 96.
Treating, for butter, Brewer (*Didericheen*), 661.
From wool washing suds, &c., Benjamin, 662.
Rendering, Edwards (*Freeland*), 3766.
Purifying, Speir & Mather, 4386.

**Tampons.** *See* "Tools."

**Tanks.** *See* "Cisterns."

**Tannin:**

Treating plants to obtain, Michel, 254.
Treating plants to obtain, Michel, 957.
Obtaining, from wood, Newton (*Mitscherlich*), 2969.
Testing quantity of, in oak bark, &c., Gedge (*Bessadi*), 4[illegible]

**Tanning; treating spent tan.** *See* "Leather."

**Tape measures.** *See* "Measures."

**Tapes.** *See* "Trimmings."

**Tapping screws.** *See* "Screws."

**Taps.** *See* "Cocks.'

**Tar:**

From blast furnace or cupola gases, Aitken, 576.
From bituminous substances, McBeath, 601.
Distilling, Willoughby & others, 839.
Obtaining carbolic acid from tar acids, Lowe & Gill, 1435.
Applying protective coating to, Newton (*Babbitt*), 1601.
Extracting, from peat, Monckton, 2581.
From spent tan, Murdoch (*Honnaij*), 3583.

**Tarpaulins: goods' covers:**

Waterproofing, Wilkinson, 4026.

**Tawing or dressing skins.** *See* "Leather."

**Tea:**

Infusing, by hydrostatic pressure, Molyneux, 61.
Teapot, Hutchinson, 756.
Compound for making, Nicoll, 982.
Heating tea urns, Heaps & Wheatley, 2986.
Insulating & fixing handles to pots, Clark (*Tiffany & Co.*), 4034.
Rolling tea leaf, Lyle, 4068.
Rotary cylindrical machine for drying, Pridham, 4133.

**Teaching:**

Military drill, Clark, 49.
Anatomy, horticulture and mechanism, Ray (*David*), 100.
Arithmetic ("The School frame"), Brennan, 139.
Geographical problems, Tillman, 334.
Musical chords and intervals, Tillman, 334.
Alphabet and spelling ("Bo-peep alphabet"), Hogg, 1889.
Adding and calculating figures, Pullen & Pullen, 1948.
Telephone for studying acoustics, Johnson (*Gray*), 2646.
Solar and astronomical phases of the earth, Mouret, 2699.
Multiplication of figures, Browne (*Martiny*), 2848.
Portable ready reckoner, Burkard, 2879.

**Telegraphs (electric):**

Insulating, coating and joining wire cables, Truman, 124.
Alphabetical code or symbols, Clark (*Sawyer*), 253.
Receiving instruments for ocean, Clark (*Sawyer*), 253.
Duplex telegraphy, Stearns (*Upham*), 256.
Cables and wires, Monckton, 265.
System of submarine telegraphy, Monckton, 265.
Using wire uninsulated or partially so, Walker, 293.
Obviating "retardation" in cables, Highton, 439.
Compound for insulating wires, Macintosh, 447.
Paying out and arresting wires and cables, Smith, 452.
Asbestos insulating supporter for, Hyatt, 478.
Covering telegraph cables with lead, Harrop, 485.
For giving call-signals and alarms, Davies & Higgins, 640.
Apparatus and methods of operating, Baggs, 673.
Sending duplex messages, Baggs, 673.
Signals, by electricity acting on rays of light, Dodwell, 764.
Sending messages automatically, Imray (*Lemon*), 822.
Ploughs to lay & imbed cables & wires, Imray (*Waters*), 862.
Printing telegraphs and code, Johnson (*Mimault*), 870.
For working signals, Bartholomew & Neale, 917.
Duplex telegraphy, Clark (*D'Infreville & Armstrong*), 954.
Printing telegraphs and copier, Kingsley (*Gally*), 964.
Insulating wire by envelope of compressed air, Prall, 979.
Cement for preserving posts, Tugwood, 983.
For train signalling on railways, Tyer, 1013.
Working train describers on railways, Walker, 1026.
For issuing orders, &c. in houses, ships, &c., Walker, 1026.
Fibrous cables, Bullivant, 1159.
District and fire-alarm, Guest, 1225.
Indicating progress of trains, Groubman, 1251.
Galvanic battery, Bennett, 1255.
Posts of cast iron tubes, Hood, 1306.
Transmitting signals, Siemens (*Siemens*), 1307.
Dividing & distributing currents, Johnson (*DeMersanne*), 1446.
Preserving wooden telegraph posts, Knowles, 1526.
Mechanical horse for field telegraphy, Gedge (*Bret*), 1579.
Transmitting conventional signals, Camp, 1684.
Post sockets; inserting and withdrawing posts, McCool, 1712.
Joining and tightening telegraph wires, Eustace, 1766.
Constructing submarine and other cables, Zanni, 1855.
Duplex telegraphy, Lake (*Viansi*), 1932.
Code and transmitters for ("The Clapptograph"), Clapp, 1950.
Working chemically printing and recording, Brown, 1966.
Constructing iron telegraph poles, Muirhead, 2074.
Material for insulating wires, Conybeare & Naphegyi, 2106.
Duplex telegraphy ("double balance method"), Oesterley [(*Schwendler*), 2235.
For transmitting fire-alarms, &c., Davies & Higgins, 2478.

**Telegraphs (electric)—*cont.***

Perforating paper, &c. for, Mackie & Waldenström, 2510.
Automatic or chemical, Newton (*Foote & Randall*), 2539.
Obviating blurs in chemical, Newton (*Foote & Randall*), 2539.
Relays and repeaters for, Newton (*Foote & Randall*), 2539.
Telephone or musical tone telegraph, Johnson (*Gray*), 2646.
Transmitting coils, &c. for chemical and other, Boyle, 2659.
For working railway signals, Currer, 2724.
Bell for telegraphic signalling, D'Humy, 2929.
By isochronous vibrating currents, Jensen (*La Cour*), 2999.
Pantelegraphs, for hand writing, &c., Jensen (*La Cour*), 2999.
Transmitting and printing messages, Jensen (*La Cour*), 2999.
Using phosphor bronze, &c. for cables, Highton, 3006.
Printing instruments, Lake (*Howe*), 3037.
Recording instruments, Oppenheimer, 3041.
Printing telegraphs and code, Johnson (*Mimault*), 3056.
Joining and tightening telegraph wires, Eustace, 3172.
Dial printing telegraphs, Clark (*D'Arlincourt*), 3250.
Accumulative system, Coddington (*Gally*), 3289.
Galvano-hydrostatic, Lake (*Lambrecht & Wippern*), 3351.
Composing and transmitting Morse code, Mouillard, 3359.
Signalling from a train in motion to station, Kellow, 3370.
Signalling from trains en route to stations, Salomons, 3515.
Accumulators or condensers for duplex, Muirhead, 3663.
Recording instruments, Muirhead, 3663.
Connecting, joining and straining wires of, Timmins, 3800.
Chemical copying or pantelegraphs; circuits; inks and paper [for same, Clark (*Sawyer*), 3935.
Battery for, Pulvermacher, 3937.
Forming lugs or claws on insulators, Sterne, 3974.
Automatic chemical or pantelegraphs, Clark (*Sawyer*), 4063.
Line clearing adjuncts for, Clark (*Sawyer*), 4063.
Working duplex and single, Anderson & Ash, 4075.
For communicating between train and station, Pocknell, 4083.
Commutators and receivers of alphabetical, Yeates, 4141.
Sockets for fixing and preserving wooden posts, Hale, 4144.
Grapnels for recovering submarine cables, Johnson, 4253.
Braiding machine for covering wires, James, 4261.
Poles and supports for insulators, Slade & Slade, 4360.
Repairing telegraph poles, Tongue (*Devrès*), 4361.
Grapnels for raising submarine cables, Lambert, 4369.
Spiral conducting wires or cores for cables, Neave, 4475.

**Telegraphs (pneumatic):**

For ships, hotels, &c., Hopcraft, 372.
For buildings, Clarke, 1071.
Or signalling apparatus, Canning & others, 3147.
Sound, for land and at sea, Cave, 4399.

**Telegraphs (printing).** *See* "Telegraphs (electric)."

**Telegraphs (reflecting light):**

Mirror apparatus for flashing sun-light, &c., Mance, 3390.

**Telemeters:**

For use in war, Bonneville (*Le Boulengé*), 1003.
Range finder for field service, &c., Weldon, 1047.
Combined range finder and sight for ordnance, Scott, 3964.

**Telephones.** *See* "Telegraphs."

**Telescopes.** *See* "Optical instruments."

**Tell-tales:**

For pressure gauges, Abel (*Redslob*), 168.
For money-boxes, Bradley, 586.
For police and watchmen, Bonneville (*Brunot*), 1004.
Or "domestic controllers," Grisar, 1312.
For beer-engines, &c., Pontifex, 1733.
Working tell-tale railway signals, Ford, 1894.
Portable watchman's time detector, Wirth (*Hahn*), 2680.

**Tempering glass.** *See* "Glass."

**Tempering metals.** *See* "Annealing."

**Templates for bending timber.** *See* "Wood."

**Temples for looms.** *See* "Weaving (temples)."

**Tennis.** *See* "Games."

**Tenons and mortices.** *See* "Cutting wood."

**Tenter frames.** *See* "Drying."

**Tents and marquees:**

Friction buckles for tent cords, Dethiou, 542.
Framing of and furniture for, Ritchie, 2275.
Constructing and fitting, Turner, 2484.
Tent pegs and tentes d'abri, Turner, 2484.
Waterproofing tent canvas, Wilkinson, 4026.
Double air-extended covers for, Pulvermacher, 4064.

**Terminals or chimney caps.** *See* "Flues."

**Trade marks:**
Means of cancelling, Napier, 131.
Tool for impressing, Bonneville (*De Mestre*), 683.
Adapting trays, waiters, &c. for advertising, Brownlie, 3308.

**Train signalling.** *See* "Signals."

**Training plants.** *See* "Plants."

**Tramway axles.** *See* "Axles."

**Tramway carriage breaks.** *See* "Breaks."

**Tramway carriages:**
Steam locomotive for, Todd, 225.
Attaching track clearers to, Webster & Thompson, 393.
Ramps, destination boards and reflectors for, Cramp, 407.
Propelling, by coiled springs, Barnett, 490.
Constructing and propelling, by manual power, Dix, 582.
Spring apparatus for starting, Betteley, 686.
Steam locomotive, Jensen (*Köhl*), 797.
Air locomotive, Scott-Moncrieff, 868.
Propelling, by elevated railways, Lake (*O'Toole*), 915.
Separate axle for each wheel, Carruthers & Rankine, 1143.
Cylindrical or rolling, Walker, 1164.
Steering, and lifting same on and off rails, Grantham, 1240.
Steering, and lifting same on and off rails, Grantham, 1383.
Compressed air locomotive, Scott-Moncrieff, 1458.
Steam locomotive, Todd, 1533.
Adapting atmospheric and other engines to, Spill, 1586.
Starting and regulating speed of, Spill, 1586.
Suppressing noise caused by engine exhaust, Spill, 1586.
Oscillating steam-engine for propelling, Herring, 1641.
Auxiliary or helping wheels, Greig & Burton, 1648.
Raising and preventing windows rattling, &c., Adams, 1852.
Fitting axle-boxes to frames of, Dobson, 1956.
Springs for, Clark (*Styles and others*), 2041.
Framings for coverings for, Scott, 2290.
Air-engine for driving, Stevens (*Laubereau*), 2364.
Wheel guard or safety apparatus, Bois, 2407.
Couplings, Wagner, 2422.
Awnings or coverings for, Smith, 2720.
Device for replacing, on track, Newcomb, 2722.
Movable platforms for, Betteley & Sharer, 2765.
Bogies; constructing steam, Fidler & Cockburn-Muir, 2890.
Self-acting lever machine or motive-power for, White, 2892.
Hydro-thermic engine for, Tommasi, 2897.
Steam or other power, Lake (*Nobles*), 2936.
Equalising pressure on springs of, Miller, 2964.
Steam-cars with movable or independent bodies, Apsey, 3012.
Bogies and platforms for steam cars, Apsey, 3012.
Carbonic acid gas and other engines for, Waller, 3017.
Hydro-thermo atmospheric carriage, Tommasi, 3031.
Construction and arrangement of, Banks, 3181.
Adapting gas engines to propelling, Lascelles, 3257.
Portable point or shoe for transferring, Jones, 3316.
Hydro-thermic vehicle or motor, Tommasi, 3476.
Propelling or driving, Monckton, 3509.
Applying and arranging two boilers to steam, Perrett, 3839.
Bogie frames and hand gear for guiding same, Perrett, 3839.
Guards or shields for the wheels of, Aitken, 4044.
Mechanism for applying power to, Russell, 4177.
Adjusting and locking wheels of, Kirkwood & others, 4408.
Gas engines for propelling, Kirkwood & others, 4410.
Driving, adjusting & locking wheels, Kirkwood & others, 4410.
Steam & compressed air, Bonneville (*Havard*), 4417.

**Tramway carriages (ventilating).** *See* "Ventilation."

**Tramway carriages (warming).** *See* "Heating."

**Tramway wheels.** *See* "Wheels for carriages."

**Tramways:**
Arranging, for carrying peat, Dudgeon, 22.
Imbedding rails in asphaltum concrete, Van Camp & Clark, 33.
Clearing the tracks, Webster & Thompson, 393.
Constructing and cleaning the tracks or grooves, Cramp, 401.
Imbedding the rails in asphalte, cement, &c., Lynde, 532.
Self-adapting snow plough, Smith (*Perkins & Stowe*), 592.
Reducing wear and tear on, Carruthers & Rankine, 966.
Impermeable pavement for ("wood macadam"), Morison, 1476.
Mastic for use in forming, Rae, 1674.
Movable, for coal tipping apparatus, Lake (*Upsom*), 3198.
Track and groove clearing machine, Craig, 3550.
Rails and sleepers, Livesey, 3667.
Pavement for ("wood mosaic"), Morison, 3744.
Constructing, and combining materials for, Turner, 3794.
Wood rails, to increase frictional surface, Turner, 3794.
Trough or ribbed rails with flat flanges, &c., Smith, 3973.
For cars without flanged wheels, Faulkner, 4203.
Keeping rails on same level as paving, Shaw, 4272.
Machinery for cutting roads for and laying stone, Leigh, 4320.

**Transfer printing.** *See* "Printing."

**Transmitting power and motion.** *See* "Propelling."

**Transmitting signals.** *See* "Signals."

**Trans-shipping coal.** *See* "Ships' cargoes."

**Trapping water-closets.** *See* "Water-closets."

**Traps for catching animals:**
Rats, mice, rabbits, &c., Ferrari, 2056.

**Traps for drains, sinks, &c:**
Deodorising and filtering, Synge, 254.
Bell or cup stench, Wilson, 534.
Bent or S shaped water or stench, Tongue (*Butler*), 1288.
Charcoal ventilator for, Johnson, 2029.
For waste pipes of cisterns, Henty, 2127.
Syphon and other traps and sealing same, Colls, 2330.
Combined trap and disinfector, Dixon, 2449.
Constructing stench, Davis, 4403.

**Traveller and ring frames.** *See* "Spinning."

**Travelling and despatch belts.** *See* "Belts."

**Travelling bags.** *See* "Bags."

**Travelling jib cranes.** *See* "Hoists."

**Travelling rugs.** *See* "Rugs."

**Travelling trunks.** *See* "Portmanteaus."

**Trays; waiters; salvers:**
Adapting, as advertising mediums, Brownlie, 3308.
Of "nickelised" iron, Monckton, 3509.
Insulating and fixing handles to, Clark (*Tiffany & Co.*), 4084.

**Treadles for machinery.** *See* "Propelling (machinery)."

**Treasure buoys.** *See* "Buoys."

**Treating ores.** *See* "Smelting."

**Trees and plants.** *See* "Plants."

**Trellis work.** *See* "Lattice work."

**Trenchers.** *See* "Dishes."

**Trenches; intrenchments:**
Cutting, Clark (*Challeton*), 781.
Sword bayonet and intrenching tool, Burton, 834.
Spade-bayonet for forming, Hughes (*Chillingworth*), 1411.

**Trespassers or poachers (detecting):**
Automatic repeating fire-arm for, Humbert & Joy, 1469.
Self-acting sound alarm for, Duke, 3987.

**Triangles.** *See* "Musical instruments."

**Tricycles.** *See* "Velocipedes."

**Trimmings:**
Making ribbons on lace machines, Sival, 218.
Plaiting, creasing or folding, Rath, 295.
Weaving tapes, ribbons, &c., Condit (*Chapin*), 316.
Goffering, plaiting or crimping, Hughes, 399.
Ruffles, ribbons and cords, Hughes, 399.
Twisting fringe on fabrics, Brooks, 727.
Machine for forming fancy fringes, Collins, 789.
Sewing and weaving fringes, Davies & Lees, 1042.
Fringes and "oval braids," Turner, 1187.
Or borderings for skirts of dresses, &c., Badcock, 1252.
Weaving or craping fringes, Clarke & Donisthorpe, 1704.
Ribbons, braid, galoon or "Diamond velvet," Büsche, 1968.
Safety pin fastener for tapes, Pulvermacher, 2172.
Compounds or "Plastique" for forming, Lake (*Bell*), 2258.
Embroidery or bordering for skirts, &c., Barnard, 2262.
Weaving tapes, ribbons, &c., Johnson (*Burlock*), 2364.
Weaving bugles, &c. in fabrics, Salomons (*Bysenatier*), 2382.
Dyeing linen and cotton threads for, Badcock, 2441.
Weaving ribbons, Page, 2861.
Using cotton yarn or braid for embroidering, Rigby, 3146.
Weaving hair headings for fringes, O'Brien & Cantrell, 3265.
Making frills and, Senier & Harwood (*Desterbecq*), 3282.
Folding and pressing, Jensen (*Hamburg-American Brewing Machine Co.*), 3291.
Weaving tapes, ribbons, &c., Burlock (*Chapman*), 3300.
For dress bottoms, Norwood & Cutler (*Murphy*), 3362.
Ribbon looms, Newton, (*Schwartz*), 4156.
Sewing beads, bugles, &c. on to, Johnson (*Salomons*), 4214.
Compounds or "Plastique" for forming, Lake (*Bell*), 4262.
Sewing-machine attachment for making, Wilson, 4294.

**Trinkets.** *See* "Jewellery."

**Tilling and cultivating land—*cont.***
Horse-hoes and cultivators, Gooday, 1863.
Side-hoeing and chopping-out root crops, Salter, 1912.
Horse-hoes and turnip thinners, Messrs. Holmes, 2057.
Self-regulating horse-hoes, Armitage, 2070.
Employing side draft in machines for, Beckwith, 2152.
Hoeing turnips and other crops, Beckwith, 2152.
Horse-hoes, Spencer, 2237.
Cleaning and forking out twitch and rubbish, Corbett, 2282.
Forking and clearing attachment for ploughs, Corbett, 2282.
Turnip & mangel-wurtzel thinner and scuffler, Corbett, 2282.
Automatic action for cultivators, Howard & Bousfield, 3080.
Using signalling apparatus in, Howard & Bousfield, 3080.
Machine for ploughing, hoeing, &c., Humber & Prowett, 3207.
Turn wrest ploughs, Williams, 3447.
Digging machinery, Hall, 3491.
Propelling or driving ploughs, &c., Monckton, 3509.
Turnip thinning machines, Thomson, 3561.
Windlass and driving gear for steam cultivators, Yull, 3899.
Steam and compressed air-engines, Bonneville (*Havard*), 4417.

**Tilting sacks.** *See* "Bags."

**Timber or wood.** *See* "Wood."

**Time-keepers.** *See* "Clocks."

**Tin and terne plates.** *See* "Coating metals."

**Tin and tin ores.** *See* "Smelting metals."

**Tin plate scrap (utilising).** *See* "Metal waste."

**Tinctures.** *See* "Extracts."

**Tinning metals.** *See* "Coating metals."

**Tins and canisters:**
Soldering, Merriam, 370.
Making and closing provision, Johnson (*Teyssonneau*), 760.
Cutting or opening hermetically sealed, Hardcastle, 2778.
Opening preserved provision cases, Griffin, 3375.
Labelling, Martin, 3622.

**Tipping waggons.** *See* "Carriages."

**Tips for boots and shoes.** *See* "Boots."

**Tobacco:**
Waterproofing cigarette ends, Macintosh, 234.
Cabinet and automaton smoker, Kinder & Kinder, 259.
Dust-proof and air-tight pouches, White, 314.
Pipe with two bowls, Wolf, 344.
Ash supporters for cigars and cigarettes, Groves, 476.
Cigar cases for withdrawing one at a time, Quin, 496.
Incombustible asbestos stems for cigar lights, Hynam, 615.
Invisible springs for snuff-box hinges, Zalkind, 742.
Cigars and cigarettes, Carnduff & Mc Harg, 973.
Freeing from nicotine & ammonia, Hammond (*Weigold*), 1227.
Heating, pressing and cooling, Gibson & others, 1516.
Making and moulding clay pipes, McLuckie, 2036.
Portable rotatory tobacco fumigator, Bennett, 2086.
Fastenings for cigar-cases, Hathaway, 2302.
Using gold-beaters' skin on cigarette ends, Schloss, 2306.
Making and moulding clay pipes, Liston, 2382.
Making cigar bunches, Wilson & Candlish (*Munk*), 2391.
Vesuvian boxes, Stearns (*Gauchot*), 2819.
Adapting cleaners to pipes, cases, &c., Clark (*Dubois*), 3230.
Twisting, compressing and rolling, Andrew, 3310.
Suspending pipes, &c. to smoker's garment, Strauss, 3362.
Machine for cutting, De Souza, 3700.
Portable fuse or cigar-lighter, Chandor (*Leonard*), 3717.
Cigar-cases, Brough, 3742.
Cutting, for cigarettes, Clark (*Susini-Ruiseco*), 3852.
Cigarette making machinery, Clark (*Susini-Ruiseco*), 3852.
Pipes and tubes for smoking, Tindell, 4429.

**Toilet table covers.** *See* "Table covers."

**Tongs:**
For serving salad, asparagus, &c., Browne (*Lenoir*), 1520.

**Tongs for cutting pipes.** *See* "Cutting metals."

**Tongs or grippers for lifting casks.** *See* "Casks."

**Tonics (medicinal).** *See* "Medicines."

**Tools:**
Punch for perforating strainers or filters, Deny, 16.
For bending boiler tubes, McNeil & Macgeorge, 51.
Combined spanner, hammer, &c., Griffin (*Austin*), 219.
Pinch bars, Morrill, 267.
For wood-working machinery, Jensen (*Gibson & Sons*), 273.
Ratchet braces, Noble, 291.
Pipe tongues and cutters, Benson (*Ferguson*), 426.
Setting diamonds in boring and cutting, Terrey, 563.

**Tools—*cont.***
Multiple, Baille, 606.
For impressing trade marks, Bonneville (*De Mestre*), 683.
For covering heads of screws with brass, &c., Hookham, 832.
Increasing power in gripping, Kennedy, 860.
Key spanner for turning fire-bars, Martin, 880.
Holder for machine, Bonneville (*Baville*), 1231.
For making screw threads on bottle necks, Rose & Brown, 1253.
Grinding and sharpening, Riches, 1301.
Glazing and paring, for boot machinery, Southall, 1514.
For shaping and cutting metals, Crow, 1544.
Tool holders for rock drills, Johnson (*Waring*), 1718.
Clamping tools and screw wrenches, Marsh (*Kinney*), 1865.
For forming rings or grooves in necks of bottles, Lamont, 1923.
Screw-tap and drill for pipes under pressure, Schanzer, 1929.
Making cast steel edge, Johnson, 2094.
Pincers for setting buttons, Bousfield (*Heaton*), 2194.
Picks for mining coal, &c., Dodds, 2396.
Applying tape measures to, Whitaker & Holden, 2671.
Chisel tool for rock drills, Hosking & Blakewell, 2760.
Tampers for moulding, drills, &c., Butler (*Stockwell*), 2872.
Fixing picks and eyed tools to handles, Hardy & Stayner, 2877.
For caulking plates, Holroyde (*Connery & Holroyde*), 2932.
Hardening glass, sand, &c. for points of, Macintosh, 2945.
Aëro-gas soldering apparatus, Mills (*Sears*), 2968.
Pick heads for mining coal, &c., Wilde, 3000.
For fixing tubes in condensers, Waller, 3017.
Compound, for making buttons, washers, &c., Harrison, 3083.
Tools for planing and shaping metals, Butler, 3112.
Implement for attaching buttons to boots, &c., Cramp, 3146.
For repairing vertical cylindrical boilers, Alley, 3224.
For cutting coal, stone, slate, marble, &c., Munro, 3836.
For use in constructing concrete buildings, Macleod, 3994.
Rakes for tearing, &c. peat from land, Davies & others, 4338.
Stamping or forging edge tools, Vaughan, 4439.
And holders for turning, planing, slotting, &c., Lingard, 4465.

**Tooth brushes.** *See* "Brushes."

**Toothed gearing.** *See* "Wheels for machinery."

**Toothed racks (cutting).** *See* "Cutting metals."

**Tooth-picks:**
Movements of sliding, Wiley, 1953.
Detachable screw mechanism, Henry (*Cross*), 3470.

**Torches or flambeaux:**
Compositions and cases for, Johnson (*Lamarre*), 214.
For signalling on ships, &c., Kermode, 1020.

**Torpedoes:**
Protecting, from premature explosion, Mathieson, 238.
Collodionised cases for, Clark (*De Froideville*), 1275.
Constructing and working torpedo boats, Caldwell (*Lay*), 1673.
Combined firing and locking apparatus for, McEvoy, 2088.
Hydrocarbonated gunpowder for, Davey & Watson, 2641.
Giving signals for exploding, Jensen (*La Cour*), 2999.
Forging air vessels for, Whitworth, 3064.
Applying commutators to firing, Clark (*Lartigue*), 3771.
Making and discharging submarine, Rendell, 4472.

**Tourist belts.** *See* "Belts."

**Tourists' lowering apparatus.** *See* "Ropes."

**Towels (weaving).** *See* "Weaving."

**Towers.** *See* "Buildings."

**Towing boats.** *See* "Propelling ships."

**Toys:**
Mechanical dancing, Clark (*La Grove*), 292.
Pistols and explosives, Johnson (*Stephens & Stephens*), 1758.
Forming figures of men, animals, &c., Jewitt (*Rose*), 1866.
Compositions or "Plastique" for forming, Lake (*Bell*), 2250.
Air gun or pistol, Pope (*Quackenbush*), 2284.
Producing soap bubbles, Clark (*Bliss*), 2366.
Mechanical hobby horses and toy carriages, Bodel, 3235.
Mechanical dancing, La Grove, 3851.
Wooden pails, small tubs, &c., Johnson (*Goulas & Co.*), 3893.
Balloon, Alexander (*Brion*), 3996.
Compositions or "Plastique" for forming, Lake (*Bell*), 4343.
Ornamenting, Clark (*Ulmann*), 4356.

**Traces and kicking straps.** *See* "Harness."

**Traction engines:**
Wheels, with self-laying shoes or surfaces, Burton, 338.
Fitted with endless portable rails, Dunlop, 667.
Or mechanical horse, Gedge (*Bret*), 1579.
Endless portable rails for, Clark (*Caillaux*), 2200.
Carbonic acid gas, steam, &c., Waller, 3017.
Fitting hauling or winding tackle to, Yull, 3899.
Compressed air and steam, Bonneville (*Havard*), 4417.

**Upholstery—*cont.***

Combined mattress and life raft, Swale, 340.
Wadding for bed quilts, Mortimer & Sykes, 888.
Muslin or leno curtains, Smith & others, 908.
Weaving asbestos curtains, Cleghorn & Paterson, 1145.
Drawing and withdrawing curtains, drapery, &c., Ball, 1347.
Mattress springs, Clark (*Doremus*), 1410.
Covering for chairs, &c., Rowan & Reid, 1507.
Furniture covering ("vegetable leather"), Muratori, 1524.
Combined bedding, bedstead, table, seats & box, Ritchie, 1906.
Bed for keeping warm the feet of invalids, &c., Kennett, 1949.
Metallic curtain poles, Underwood & Phipson, 2229.
Felt for covering furniture, Job, 2433.
Fitting mosquito curtains or nets to beds, Turner, 2484.
Metallic spring mattresses, Corroyer (*Desoutter*), 2535.
Life or treasure preserving mattress, Torrence, 2649.
Spring mattresses and seating for sofas, chairs, &c., Welch, 2714.
Pillows or cushions for railway cars, Lake (*Tryon*), 2755.
Life saving bolsters and mattresses, Woods & Stevens, 3035.
Weaving fabrics for valances and draperies, Fry & Co., 3411.
Curtain rings of "nickelised" iron, Monckton, 3509.
Wire mattresses and seats, Schallehn (*Brühs*), 3872.
Window hangings, Wilkinson, 4026.
Air-cushions for bed pans, invalids, &c., Wackrill, 4334.
Attaching bed furniture and trimmings, Dearden, 4449.
Weaving harness curtains, blinds, screens, &c., Wilson, 4451.
Artificial skins for covering sofas, chairs, &c., Brown, 4459.

**Upsetting metals:**

Percussive machinery for, Clark (*Chenot*), 1676.
Screw nut blanks, Clark (*Van Anden*), 1996.

**Urethra syringes.** *See* "Syringes."

**Urinals:**

Deodorising and filtering trap for, Synge, 254.
Controlling and preventing waste of water in, Charles, 353.
Water waste preventers, Dennis, 431.
Combined lavatory, sink and, Smeaton & Tylor, 1028.
Disinfecting and deodorising, Bond, 1510.
Valves for preventing water-waste in, Connell, 2274.
Valveless fluid disinfector for, Jones, 2466.
Deodoriser for, Monckton, 2581.
Applying japanned metal sheets to covering, Hughes, 2593.
India-rubber sheets for covering, Thomson & Watson, 2913.
Combined flushing and disinfecting apparatus, Jones, 3279.
Preventing water waste in, Lynde, 3352.
Purifying and disinfecting urine in, Bonnefin, 3384.
Powder for deodorising and disinfecting, Bond, 3799.
Regulators and valves or waste preventers for, Powell, 4413.

**Urns:**

For infusing coffee, Fenby, 1090.
Heating tea urns, Heaps & Wheatley, 2966.
Grinding and polishing, Lake (*Volk*), 3806.
Insulating and fixing handles to, Clark (*Tiffany & Co.*), 4034.


## V.


**Vacuum gauges.** *See* "Gauges."

**Vacuum pans:**

Perfecting vacuum in, Harrison & others, 537.

**Vaginal canulas.** *See* "Surgery."

**Valances and draperies.** *See* "Upholstery."

**Valises for camp equipage.** *See* "Camp."

**Valves (air):**

Air bed, Cotter, 1.
Atmospheric and condenser, Haseltine (*Jones & Pauly*), 35.
Pressure regulator for air-motors, Clark (*Casement*), 70.
For air heating apparatus, Lewis & Wood, 180.
For drying cylinders, Moison, 196.
For pneumatic telegraphs, Hopcraft, 372.
For admitting air to cylinders of gas-engines, Ford, 486.
Actuating vacuum engine, Harrison & others, 537.
Arranging and actuating engine, Robinson, 717.
For controlling air in ventilating, Landau, 768.
For engines of tram or road carriages, Scott-Moncrieff, 868.
Air carburetter, Hunter, 907
Piston, for three cylinder engines, Willans, 974.
For pneumatic signals, Prall, 979.
For regulating pressure, Lockwood, 998.
For ore crushers, Krom, 1058.
For pneumatic breaks, Bonneville (*Marchand*), 1170.
Regulating flow of, Pearson, 1176.
Screen or bolting frame, Childs, 1455.
Operating air-engine, Nehrlich, 1873.

**Valves (air)—*cont.***

Valve plate for air pump connections, Marchant, 1946.
Relief, for air pressure, Tijou, 1987.
Air-pump, Weatherby, 2115.
For locomotive steam chests, Ward, 2297.
Arranging thermodynamic engine, Jenkin, 2441.
Expanding ring, for air engines, Knowelden, 2901.
For "barrel churns," Eastwood & Garside, 3012.
For air-pumps, Johnson (*Genesta & others*), 3047.
For regulating draught in furnaces, Lake (*Jasper*), 3215.
Slide, for reciprocating engines, Edwards, 3342.
For direct-acting compressed air pumps, Hamilton, 3548.
Cylindrical slide, for air-engines, Wilks, 3621.
Arranging and working air-engine, Parker & Weston, 3668.
For discharging air from pipes or vessels, Braidwood, 3913.
In copying telegraph apparatus, Clark (*Sawyer*), 3933.
Cylindrical regulator for slide, Mills (*Teal*), 4035.
Operating, &c. rotary engine slide, Mills (*Teal*), 4033.
Arranging pneumatic signal, Chambers, 4293.
Arranging, of pneumatic railways and tube, Rammell, 4300.
Working slides of percussive rock drills, Beaumont, 4402.
Equilibrium slide, for engines, Willis & Blick, 4420.
Compound reciprocating engine, Clayton & others, 4453.

**Valves (gas):**

Pressure regulator for gas-works, Clark (*Casement*), 70.
Gas-engine and gas-engine burner, Ford, 486.
For sealing hydraulic mains in lieu of liquids, Box, 566.
Gas-engine, Abel (*Daimler*), 605.
Or plug for admitting gas to burners, Siebert, 622.
Feed valves for gas carburetting chambers, Weston, 702.
Arranging and actuating engine, Robinson, 717.
Regulator, Landau, 768.
Gas-tight spindle, without packing, Bayley & Bayley, 897.
Air-gas, Hunter, 907.
Regulating flow of, Pearson, 1176.
Ball regulator for, Gercke (*Neuber*), 1531.
Liquid valve for air-gas regulators, Clark (*Capes*), 1851.
Circular grate, for engines, Soul (*Hartog & Co.*), 2057.
For regulating quantity to burners, Lack, 2049.
Double way supply, Wilson (*Craig & Brevoort*), 2059.
Arranging gas pump, Weatherby, 2115.
Regulating supply to Argand burners, Newton (*Welch*), 2197.
Gear or motion for working gas-engine, Bremme, 2361.
Valve plate and seats of cocks or, Else, 2711.
Lock tap or valve for gas fittings, Jones, 2797.
Or cocks constructed as bib or stop cocks, Johnson, 2834.
Or tap to do away with packing, Houghton, 2880.
For regulating supply to lamps and burners, Hulett, 2894.
Slide, for gas-engines, Waller, 3017.
Disc valves; working & locking same, Westwood & others, 3346.
For regulating quantity to burners, Lack, 3611.
For regulating pressure, &c. in mains, Pollard & Carter, 3730.
For reducing or regulating pressure, Turton & others, 3778.
Valve box covers for gas mains, Dowland, 3963.
Regulating, for gas fittings, Sugg, 4227.
Rotating disc, for crankless gas-engines, Grecy, 4357.
Packing or rendering tight the spindles of, Allen, 4382.
Equilibrium slide, for engines, Willis & Blick, 4420.
Compound reciprocating engine, Clayton & others, 4453.

**Valves (miscellaneous):**

Protecting india-rubber, from chemical action, Quin, 63.
Hydro-pneumatic jack, Browne (*Knapp*), 66.
For regulating draught in flues, Lake, 174.
Floating dock and pontoon, Clark & Standfield, 202.
Ball valves for horizontal vapor pumps, Harrison, 363.
For admitting air into casks, Edwards, 384.
For use in raising sunken vessels, Blaxland, 491.
Arranging and actuating meter, Robinson, 717.
Float valve for liquid measures, Hughes, 734.
Dispensing with spindle packing, Bayley & Bayley, 897.
Regulating flow of liquids, &c., Pearson, 1176.
For use in flour, malt & other mills, Murray & Paterson, 1721
Centrifugal machine, Hepworth & Paulding, 1796.
Equilibrium, Tijou, 1987.
Mode of arranging, Weatherby, 2115.
Spring hinge for, Wood, 2123.
Soap bubble apparatus, Clark (*Bliss*), 2366.
Stop valves for pipes, Whitton, 2431.
Or tap for decanting aërated beverages, Bliss, 2577.
Or lock tap for regulating flow of fluids, Jones, 2797.
Arranging hydro-thermic press, Tommasi, 2896.
Arranging hydro-thermic engine, Tommasi, 2897.
Arranging hydro-thermic rivetting machine, Tommasi, 2898.
Arranging hydro-thermic punching machine, Tommasi, 2899.
For dry earth, ash and other closets, Garnett & Leyland, 2949.
Or tap for decanting aërated beverages, Goddard, 3011.
Siphon, Clark (*Sherwood*), 3097.
And key or handle for bottles, casks or chambers, Atkins, 3181.
For regulating heat in cooking ranges, Corbitt, 3293.
Arranging, in retort drawing machines, Foulis, 3467.
Double-action, for feeding fountain lamps, Defries, 3749.
For regulating pressure of fluids, Turton & others, 3778.
Valve gear for carburetting machines, Fogarty, 3782.
Protecting india-rubber, from chemical action, Quin, 3862.

**Valves (miscellaneous)—*cont.***

Three-way, Mather (*Clausolles*), 3910.
Sockets for valve box covers, Dowland, 3963.
For receivers of drawing-off siphons, Shanks, 4127.
For use in bottling ale, beer, &c., Bruce, 4180.
Of copper with convex rim on seating, Foster, 4234.

**Valves (steam):**

Actuating engine, Page, 27.
High and low pressure engine, Haseltine (*Jones & Pauly*), 35.
Cut-off rotary engine, Bousfield (*Manley*), 58.
Safety, or pressure regulator, Clark (*Casement*), 70.
Actuating equilibrium throttle, Davies, 104.
Safety, and low water indicator combined, Radford, 136.
Valve-bar and steam-pump, Hooker, 203.
Steam cocks or, Tylor & Tylor, 277.
Operating engine, in propelling vessels, Clark (*Morton*), 290.
Convex safety, for steam-boilers, Blake, 396.
Steam-pump, Lumley, 403.
Operating rock boring engine, Dunn, 503.
Expansive engine slide, Blackburn & Blackburn, 507.
Combined steam and caloric engine, Marchant, 509.
Three-way, for railway steam breaks, Ellison & Dargue, 590.
Working engine, Terrace, 630.
Working slide and other engine, Collins, 651.
Expansion and slide valve gear, Messrs. Hulme, 704.
Arranging and actuating engine, Robinson, 717.
Steam-tight spindle without packing, Bayley & Bayley, 897.
Moving slide valve of steam pumps, Pickering, 932.
Compound engine, Alliott, 942.
Piston expansion and circular gridiron, Northcott, 944.
Safety and blow-off taps or, George, 949.
Piston, for three cylinder engines, Willans, 974.
Rings used as steam-engine, Moy, 977.
For regulating pressure, Lockwood, 993.
Arranging and operating engine, Dack, 1025.
Working and arranging expansion, Van Waayenberch, 1039.
For controlling the flow or discharge of, Nield, 1055.
Actuating engine, Benson (*Cope & Maxwell*), 1066.
Gear or motion for engines and steam pumps, Bremme, 1106.
Packing stuffing-boxes of rods, Cleghorn & Paterson, 1145.
Regulating flow of, Pearson, 1176.
Distributing and reversing engine, Lake (*Nobles*), 1201.
Throttle and safety, Jackson, 1310.
Piston and "Corliss," Messrs. McNaught, 1388.
Varying gear for "cut-off" of, Messrs. McNaught, 1388
Double, for engine oilers, Lake (*Fassett & Hill*), 1389.
Oiling seats of steam-engine, Lake (*Fassett & Hill*), 1389.
Lubricating engine, Jones, 1429.
Reducing friction of slide, Oclee & Woodcock, 1661.
Arranging steam-engine, Dawes & Holt, 1728.
Arranging valves of steam hammers, Lake (*Pregél*), 1731.
Combined relief and starting valve, Murdoch, 1844.
Speed indicator applicable as a safety, Muirhead, 1909.
Constructing & loading marine & other safety, Snowden, 1922.
Working slide and expansion, Davey, 1943.
Differential and regulating safety boiler, Russell, 1962.
Safety, for marine and other boilers, Tijou, 1987.
Spindles, &c. for boiler and engine, Heale & Gowan, 2017.
Circular grate, for engines, Soul (*Hartog & Co.*), 2037.
Variable expansion for engines, Soul (*Hartog & Co.*), 2037.
Double way, for pumps, &c., Wilson (*Craig & Brevoort*), 2059.
For low-water alarm apparatus, Partridge, 2159.
Compound steam engine, Coxon, 2193.
Expansion or cut-off, and actuating same, Shuttleworth, 2263.
Arranging gear of reciprocating engine, Anderson, 2268.
Oiling slide valves of locomotives, Ward, 2297.
Releasing the load on boiler safety, Colls, 2328.
Gear or motion for working engine slide, Bremme, 2361.
Arranging, to work expansively, for pumps, &c., Walker, 2371.
Actuating slide valves, Mackenzie, 2428.
Stop valves for steam pipes, Whitton, 2431.
Actuating and cushioning piston-valves, Field & Cotton, 2474.
Boxes serving as steam chests, Hunt (*Nillus*), 2491.
Arranging "Corliss," Spencer & Inglis, 2529.
For rotary engines and pumps, Higginson, 2552.
Actuating expansion engine, Kirby & Kirby, 2607.
For heating or drying apparatus, Clark (*Bradford*), 2648.
Slide-valves for engines and hammers, Higham, 2657.
Actuating engine slide, Bernays, 2674.
Valve plate and seats of cocks or, Else, 2711.
Equilibrium slide, Browning & Scott, 2738.
Expansion, for oscillating engines, Scott (*Haag*), 2758.
Steam-pipe valve indicator, Lake (*Muchin*), 2761.
Slide, for direct-acting steam-pumps, Brown, 2805.
High pressure stop cocks or, Johnson, 2824.
Valve gear for reversing engines, Mc Glasson, 2845.
Or tap to do away with packing, Houghton, 2880.
Valve box and slide valve for marine engines, Spartali, 2900.
Expanding ring for steam-engines, Knowelden, 2901.
For ejectors working air break exhausters, Smith, 2950.
Actuating equilibrium, of rotary engines, Sudlow, 2962.
Slide, acting as a cut-off, in rotary engines, Sudlow, 2962
Metallic packing for circular, Johnson & Andrew, 2978.
Metallic packing for stems, Hunt (*Richards & others*), 2987.
For preventing boiler explosion, Hughes (*Barbe & Co.*), 3016.

**Valves (steam)—*cont.***

Slide, to remove pressure, Waller, 3017.
Employing mica, &c. as a packing, Talling & Seccombe, 3048.
Arranging two cut-off valves on back of slide, Ruston, 3053.
Slide, for scroll disc rotary engines, Cooper, 3082.
For steam-boiler injectors, Holt, 3226.
Main, cut-off, exhaust, relief and injection, Holt, 3227.
For regulating blast in engines, Clark (*Gregory*), 3258.
Piston and "Corliss," Messrs. Mc Naught, 3264.
Varying gear for cut-off of, Messrs. Mc Naught, 3264.
Spindles for, to dispense with stuffing box, Furness, 3287.
Check, for boiler water circulating pipes, Berryman, 3306.
Slide, for reciprocating engines, Edwards, 3342.
Disc valves, working & locking same, Westwood & others, 3345
For pumping engines, Benson (*Cope & Maxwell*), 3361.
Arranging cut-off, in direct-acting engines, Browne, 3373.
For two cylinder compound marine engines, Rankin, 3393.
Cut-off and slide, for engines and pumps, Craig & others, 3494.
Steam traps and escape or loaded safety, Shann, 3514.
Steam-regulating, Metcalf & Gibbons (*Watts*), 3517.
Operating or actuating, Metcalf & Gibbons (*Watts*), 3517.
For hot-air and steam generators, Clark (*Samuel*), 3536.
For direct-acting pumps, Hamilton, 3549.
Working slide valves of expansive engines, Rawlings, 3618.
Rotating cylindrical slide, and working same, Wilks, 3621.
Slide and variable expansion, for high pressures, Rigg, 3648.
Double-acting expansion and cut-off, Parker & Weston, 3658.
Arranging and working expansion, &c., Parker & Weston, 3658.
Arranging & working compound engine, Hooker & Browne, 3661.
Piston, for compound engines, Hooker & Browne, 3661.
Condenser valve seatings for engines & pumps, Holman, 3768.
Back pressure, for steam-boilers, Bell, 3777.
For diminishing or reducing pressure, Turton & others, 3778.
Lubricating slide, Johnson (*Forquenot*), 3779.
Actuating cut-off valves, Earnshaw & Holt, 3841.
Reciprocating slide, for high pressure engines, Fletcher, 3844.
Slide, for reciprocating engines, Brotherhood, 3883.
For convertible cylinders of locomotives, Cook, 3890.
Working expansion, and reducing pressure on slide, Dack, 3922
Actuating pumping engine, Evans, 3938.
For glass water boiler gauge fittings, Hallam & Lamb, 3955.
Cylindrical regulator for slide, Mills (*Teal*), 4035.
Operating, &c. rotary engine slide, Mills (*Teal*), 4035.
Loose seatings for clack, Westley, 4045.
Arranging and operating steam-engine, Péne, 4047.
For engine exhaust apparatus, Haseltine (*Jones*), 4053.
Arranging piston valves in engines, Dugard, 4126.
Safety, capable of acting as relief valves, Hill, 4181.
Safety holes and plates for boilers, Cullen, 4186.
Working steam-pump cylinder, Wolstenholme & Thorpe, 4212.
Of copper with convex rim on seating, Foster, 4234.
Steam traps; diminishing or reducing, Royle, 4237.
Vacuum, for compound engines, Johnson (*Reaney*), 4318.
Regulating pressure of steam currents, Wise (*Coignet*), 4325.
Constructing safety, with two seatings, Jordan, 4328.
Making slide valves act as expansion, Owthwaite, 4349.
Operating slide valves, Owthwaite, 4349.
Working expansive engine, Paget (*Wannieck & Köppner*), 4354.
Rotating disc, for crankless engines, Greey, 4357.
Packing or rendering tight the spindles of, Allen, 4382.
Oscillating, for engines, Wainman & Holmes, 4391.
Operating low-water safety, Hopkinson & Hopkinson, 4405.
Covering weights of safety, Hopkinson & Hopkinson, 4419.
Equilibrium slide; oiling same, Willis & Blick, 4420.
Spring loaded safety valves and gear, Caldwell, 4425.
Actuating sliding cut-off piston valves, Woods, 4434.
Compound reciprocating engine, Clayton & others, 4455.
Slide valves & operating same, Haseltine (*Hodge*), 4464.

**Valves (water):**

Syringe, Robins, 23.
Pressure regulator or controller, Clark (*Casement*), 70.
Ram pump suction, Brookes, 84.
Pump, Benson (*Painter*), 121.
Steam-pump, and packing same, Hooker, 203.
Hydraulic motive-power engine, Lea, 223.
Compound lever, ball and float, Tylor & Tylor, 277.
Hydraulic motive-power engine, Joy, 366.
Steam-pump suction, Cherry, 404.
Bib or drawing off cock, Underhay, 499.
Ball and other taps or valves, Haseldine, 565.
Hydraulic motive-power engine, Robinson, 717.
Ball, for cisterns, tanks, &c., Woodcock, 720.
Or cocks for regulating supply from cisterns, &c., Goold, 813.
Pump valve box, Newton (*Silver & Attwood*), 873.
For dock, lock and basin gates, Stoney, 882.
Water-tight spindle without packing, Bayley & Bayley, 897.
Lubricating pump, Martin, 936.
Steam-pump, Alliott, 942.
Rings used as pump, Moy, 977.
For regulating pressure, Lockwood, 993.
Hydraulic ram, Fyfe, 1016.
For flushing water-closets, drains, &c., Pout, 1027.
Suction and delivery, of pumps, Colebrook, 1043.
For controlling the flow or discharge of, Nield, 1055.
Gear or motion for steam pumps, Bremme, 1106.

**Valves (water)—*cont.***

For water-closets, Pearson, 1175.
Regulating flow of, Pearson, 1176.
Valve gear for hydraulic pumps, Pattison, 1189.
Actuating pump, meter and engine, Frost, 1619.
Valve arrangement to prevent waste, Underhay, 1732.
Working slides of water-pressure engines, Davey, 1943.
For fire extinguishing apparatus, Smeaton, 1985.
Relief, for hydraulic pressure, Tijou, 1987.
Double way supply, Wilson (*Craig & Brevoort*), 2059.
For water and liquid manure carts, Pearson, 2126.
Water-waste preventing supply valves, Connell, 2274.
Gear or motion for working engine, Bremme, 2361.
Self-regulating supply, for tanks, Finch, 2499.
Arranging steam pump, Clark (*Atkinson*), 2563.
Stop valves, Wise (*Biega*), 2605.
For street mains, &c. to receive stand pipes, Clarke, 2680.
For preventing waste in cisterns, tanks, &c., Aldous, 2694.
Valve plate and seats of cocks or, Else, 2711.
For cisterns, hydrants, stand pipes, &c., Payton, 2742.
Expansion, for oscillating engines, Scott (*Hoag*), 2758.
High pressure stop cocks or, Johnson, 2824.
Or tap to do away with packing, Houghton, 2880.
Expanding ring, for water-power engines, Knowelden, 2901.
Metallic packing for stems, Hunt (*Richards & others*), 2967.
Slide, for scroll disc rotary steam-pumps, Cooper, 3082.
For hydrants, Atkins, 3101.
For pumps, surface condensers, &c., Barker, 3164.
For hydraulic cylinders, Bessemer, 3274.
Spindles for, to dispense with stuffing-box, Furness, 3287.
Self-acting, for regulating supply to tumblers, White, 3304.
Disc valves: working and locking same, Westwood & others, 3354.
Ball, for cisterns, Huggett, 3439.
Reversible pump valve, Kirtley, 3525.
Cylindrical slide, for engines, Wilks, 3621.
Slide, for hydraulic engines, Rigg, 3648.
Arranging, &c. water-power engine, Parker & Weston, 3658.
Arranging and working steam pump, Hooker & Browne, 3661.
Relief, for fluids under pressure, Hambleton (*Prunty*), 3699.
Stop; regulating supply and pressure, Pollard & Carter, 3720.
Check safety, for baling presses, Mann (*Watson*), 3725.
Self-acting relief, for baling presses, Mann (*Watson*), 3725.
Inlet, ball, float and other, Tylor, 3735.
For letting-off condensed steam, Braidwood, 3919.
Opening escape, for hydraulic purposes, Dack, 3922.
Actuating pump, Evans, 3938.
Valve box covers for water mains, Dowland, 3963.
Loose seatings for clack, Westley, 4045.
For automatic fire extinguishers, Hughes (*Parmeles*), 4288.
Condensed steam regulator, Wise (*Coignet*), 4325.
For feeding boiling water, Wise (*Coignet*), 4325.
For feeding water under pressure, Wise (*Coignet*), 4325.
Rotating disc, for crankless engines, Greey, 4357.
Packing or rendering tight the spindles of, Allen, 4382.
For preventing waste in closets, urinals, &c., Powell, 4413.
Equilibrium slide, for engines, Willis & Blick, 4420.
For baling presses and pumps, Mann (*Watson*), 4427.
India-rubber, for condensers of steam pumps, Saxby, 4486.

**Vanillin:**

From coniferine or sap of plants, Haarmann, 709.

**Vanning and washing ores.** *See* "Washing."

**Vapour baths.** *See* "Baths."

**Vapourisers for rooms** *See* "Perfuming."

**Vapourising substances.** *See* "Heating."

**Varnish brushes.** *See* "Brushes."

**Varnishes; varnishing:**

Oil for making or mixing, Lake (*Cattanach*), 483.
Spirit and oil, Zingler, 1239.
Ceilings, walls and surfaces, Thys, 1384.
Or composition for preserving metals, Ara & Del-Bubba, 1595.
Preparing, from aniline products, Casthelas, 2009.
Applying "Zapotine" in making, Conybeare & Naphegyi, 2106.
Solvents for use in making, Mackay, 2709.
Employing "mica" for making, Talling & Seccombe, 3046.
Varnishing "papyrographic paper," De Zuccato, 3150.
For varnishing life-belts, &c., Count de Liancourt, 3599.
Using eupion in the manufacture of, Zingler, 3758.

**Vaseline.** *See* "Oils (mineral)."

**Vases:**

Imitation marble, Déléon, 525.
Ornamenting, Brock, 1562.
Applying japanned metals as a covering, Hughes, 2598.
Cutting out wooden, Johnson (*Goulas & Co.*), 3893.

**Vats.** *See* "Cisterns."

**Vaults and basements.** *See* "Buildings."

**Vaults or graves.** *See* "Graves."

**Vegetable oils.** *See* "Oils (vegetable)."

**Vegetables (preserving, &c.).** *See* "Preserving food."

**Vegeto-mineral coke.** *See* "Charcoal."

**Veil fasteners.** *See* "Jewellery."

**Vellum.** *See* "Leather."

**Velocipedes:**

Bicycles and tension wheels, Grout, 1163.
Propelled by weight of rider, Hughes (*Gombert*), 1330.
Tricycles, worked by the hands, Walsh, 2239.
Air-engine for propelling, Stevens (*Lombreau*), 2364.
Arranging driving wheels inside framing, Richer, 3111.
Tricycle, worked by pedals or hand levers, Bodel, 3323.
Endless round bands for bicycle tyres, Ingram, 3437.
Propelling or driving, Monckton, 3509.
Propelling three wheeled carriages, Morrison, 3523.
General construction of bicycles, Cave, 3628.
For use upon rails and common roads, Calvert, 3754.
Gearing for driving bicycles, fast or slow, Fletcher, 3844.
Constructing and adapting, for both sexes, Starley, 3909.
Cranks, &c. for tricycles, Walsh, 4351.

**Velvets (weaving).** *See* "Weaving."

**Veneers.** *See* "Wood."

**Venetian blinds.** *See* "Window-blinds."

**Ventilating caissons.** *See* "Caissons."

**Ventilating carriages:**

Adjustable sash for, Gedge (*Bradley Window Co.*), 91.
By tubes supplying air to lamps, Landau, 768.
Inlet, intermediate and extraction ventilators, Reeves, 1868.
Heating air for, Brookes (*Chaumont*), 1431.
Dust-proof window-blind for, Rich, 1456.
By employing perforated glass, Phillips, 1769.
Arranging valves, passages or apertures, Tuddenham, 1939.
Combination of a tube and hinged flaps for, Macklin, 2132.
By refrigeration, Haseltine (*Bate*), 2352.
Self-acting rotary fan, Molony, 2457.
Flues for railway sleeping cars, Roberts, 2843.
Cattle trucks, Dorn, 3116.
Filtering or purifying air for, Hunt (*Reynoso*), 3377.
Cowl for, Banner, 3400.
Air jet exhauster for withdrawing air in, Körting, 3566.
Heating air for, Lemeunier & Martin, 3791.

**Ventilating drains and sewers:**

Rotary fan for, Van de Weerd, 245.
Charcoal ventilator, Johnson, 2020.
Filtering or purifying air for, Hunt (*Reynoso*), 3377.
Shaft or pipe and cowl for, Banner, 3400.
And consuming, &c. gases arising therefrom, Harding, 3539.
And consuming gases arising therefrom, Matthews, 3668.
Combined ventilator, flushing box and lamp hole, Batten, 3882.
Tube or shaft for, Morrell, 4247.
Trap and valve arrangement, Gill, 4363.
Connecting sewers with street lamps, Hoyt, 4468.

**Ventilating graves.** *See* "Graves."

**Ventilating houses and buildings:**

Adjustable sash for, Gedge (*Bradley Window Co.*), 91.
Rooms, by withdrawing vitiated air, Lewis & Wood, 129.
Supplying fresh air, Lake (*Myers*), 233.
Rotary fan for, Van de Weerd, 245.
By feeding fires with vitiated air, Buckingham, 551.
Pump or apparatus for, McBeath, 601.
Promoting constant ventilation, Leoni, 629.
By hollow bricks, Hyatt, 783.
Arranging cold air pipes for, Salomons, 910.
Rooms, by refrigeration, Martin, 936.
Working punkahs by fluid pressure, Imray, 961.
Stove for, Peacock, 1065.
Inlet, intermediate and extraction ventilators, Reeves, 1868.
By hot-water apparatus, Taylor & others, 1331.
Supplying oxygen in rooms, Wilson, 1424.
Dust-proof window-blind for, Rich, 1456.
Forming flues in floors, &c. for, Hyatt, 1715.
By employing perforated glass, Phillips, 1769.
Fire-proof warehouses or storehouses, Wright, 1776.
Adapting refrigerators for cooling air for, Coles, 1848.
Supplying fresh heated air, Ballard & Pitts, 1863.
Rooms, by refrigeration, Nehrlich, 1873.
Pump for compressing air for cooling, Marchant, 1946.
Exhaust fans for, Ashton, 2054.
Hot-air stove for, Whiting, 2104.

**Ventilating houses and buildings—*cont.***
By refrigeration, Weatherby, 2115.
Cowl and air-conduit for, and cleaning same, Edwards, 2295.
By refrigeration, Haseltine (*Bate*), 2352.
Arranging kitcheners for better ventilation, Court, 2405.
Cockle-stove for, Perry, 2559.
System and apparatus for, Mouly, 2566.
Flues, windows and doors for, Ball, 2583.
Constructing "sun lights" for better, Rigby & Rigby, 2692.
Cooling or freezing air for, Mort (*Nicolle & Mort*), 2763.
Flues for, hospitals and sleeping rooms, Roberts, 2843.
Stove or air heating apparatus for, Truswell & Holden, 2867.
Applying a grating in chimney near ceiling, Lane, 2975.
Applying expanding frames to windows, Driscoll, 3034.
Filtering or purifying air for, Hunt (*Reynoso*), 3377.
Shaft or pipe and cowl for, Banner, 3400.
Lamp, with water dish, for vaporising rooms, Parkes, 3464.
Louvres for iron houses, Elsdon & Ayres, 3497.
Air compressing steam jet apparatus for, Körting, 3505.
Air jet exhauster for withdrawing air in, Körting, 3506.
Hollow wooden posts or columns for, Plimpton, 3508.
Electro-magnetic engine for, Monckton, 3509.
Disinfecting and deodorising air in rooms, Wilson, 3681.
Heating air for, Lemeunier & Martin, 3791.
Syphon and single tube ventilators, Hill & Hey, 3863.
Pneumatic apparatus for, Richardson, 3866.
Pipe arrangement for, Ritchie, 4043.
Compressing and cooling air for, Newton (*Willams*), 4084.
Pipe and air-pump arrangement for, Lake (*Coleman*), 4230.
Stove or air-heating apparatus for, Eyre, 4256.
Syphon and single tube ventilators, Hill & Hey, 4270.
Bell stove for, Coventry, 4379.
Exhaust apparatus for, Hogg, 4468.

**Ventilating mines and tunnels:**
Rotary fan for, Van de Weerd, 245.
Exhausting from and forcing air into mines, Johnson, 1360.
Refrigerating apparatus for cooling air for, Coles, 1848.
Brattice canvas, Hawksworth, 1968.
Rotary ventilator or fan, Morison, 3134.
Portable Guibal ventilator or fan for, Nelson, 3135.
Filtering or purifying air for, Hunt (*Reynoso*), 3377.
Steam jet apparatus for, Körting, 3506.
By ozonising the air, Monckton, 3509.
Right and left handed screw device for, Johnson, 3545.
Underground railways, Chambers, 3676.
Pneumatic apparatus for, Richardson, 3866.
Exhaust apparatus for, Hogg, 4468.

**Ventilating ships:**
Sash for steam-boats, Gedge (*Bradley Window Co.*), 91.
By tubes supplying air to lamps, Landau, 768.
Inlet, intermediate and extraction ventilators, Reeves, 1080.
Constructing berths to ensure better, Dewar, 1105.
Ventilating lights or illuminators, Hyatt, 1715.
Refrigerating apparatus for cooling air for, Coles, 1848.
Combination of a tube and hinged flaps for, Macklin, 2132.
Self-acting rotary fan for, Molony, 2457.
Reducing temperature in, Clark (*Leydet*), 2555.
Flues for ships' berths, Roberts, 2843.
Filtering or purifying air for, Hunt (*Reynoso*), 3377.
Shaft or pipe and cowl for, Banner, 3400.
And berths or sleeping compartments, Johnson, 3443.
Air compressing steam jet apparatus for, Körting, 3505.
Pneumatic apparatus for, Richardson, 3866.
Pipe arrangement, &c. for, Lake (*Coleman*), 4230.
Exhaust apparatus for, Hogg, 4468.

**Ventilating wearing-apparel:**
Waterproof overcoats, &c., Clark, 204.
Felt and other hats, Gold, 524.

**Verandahs.** *See* "Buildings."

**Verdigris.** *See* "Metallic salts."

**Vessels or ships.** *See* "Ships."

**Vests.** *See* "Wearing-apparel."

**Vesuvians.** *See* "Matches."

**Viaducts.** *See* "Bridges."

**Vices:**
Multiple tool, Baille, 603.
Supporting and working jaws of, Picken & Picken, 1703.
Clamping tool, usable as a, Marsh (*Kinney*), 1865.
With spring clip for screw-threading pipes, Grindrod, 3018.
For use in affixing buttons to boots, &c., Dorman, 3748.

**Vinegar.** *See* "Acids."

**Viscous matters (drying)** *See* "Drying."

**Voltaic bands.** *See* "Belts and bands."

**Voltaic batteries.** *See* "Electricity."

**Voting or ballot apparatus:**
Taking and numbering votes, Jacobsohn, 3961.

**Vulcan glass.** *See* "Glass."

**Vulcanite.** *See* "India-rubber."

## W.

**Wadding:**
For bed quilts, travelling rugs, &c., Mortimor & Sykes, 888.
Or "lichenized wadding," Lake (*Lelièvre*), 2149.

**Wads.** *See* "Cartridges."

**Waggons for coal pits.** *See* "Mining."

**Waggons (railway).** *See* "Railway carriages."

**Waggons (road).** *See* "Carriages."

**Waist protectors.** *See* "Medical treatment of man."

**Waistbands.** *See* "Belts and bands."

**Waistcoats.** *See* "Wearing-apparel."

**Waiters.** *See* "Trays."

**Walking sticks:**
Ornamenting, Bluemel, 1307.
Crystal handles for, Jones, 1582.
Joint for securing handles to, Clissold, 2285.
Applying measuring tapes to, Whitaker & Holden, 2671.
Ornamenting heads of, Lustig, 2997.
Or tripod stand for theodolites, Francis, 3616.
Using detachable umbrella handles as, Pulvermacher, 4064.
Enclosing umbrellas in tubes or, Pyne, 4249.
Ornamental cane knobs, Clark (*Ulmann*), 4356.

**Wall papers.** *See* "Paper hangings."

**Walls:**
Cement for preserving, Tugwood, 983.
Material for forming ("Lignolithite"), Brannon, 1246.
Cleaning, whitewashing, painting and varnishing, Thys, 1384.
Stone pictures ("Pictoliths") for decorating, Brannon, 1472.
Double trough bricks for forming, Hyatt, 1715.
Compound material for covering, Brannon, 2027.
Stone-coating, McGrigor (*Robertson*), 2047.
Constructing columns for erecting, Johnson (*Hill*), 2398.
Cement or plastic for facing, O'Friel, 2500.
Advertising block for, Cotter, 2545.
Applying japanned metals to covering, Hughes, 2593.
Making oil printing blocks for decorating, Durand, 2656.
Transferring decorative paintings to, Magny, 2723.
India-rubber sheets for covering, Thomson & Watson, 2913.
Applying glass to decorating, Hartley, 3084.
Shaping and applying metal sheets, &c. to, Hyatt, 3171.
Combining wooden strips and partitions for, Plimpton, 3508.
Apparatus for constructing concrete, Potter, 3945.
Compound for coating, Wilkinson, 4026.

**Wardrobes and drawers.** *See* "Furniture."

**Warehouses.** *See* "Buildings."

**Warming.** *See* "Heating."

**Warning or signalling to drivers.** *See* "Signals."

**Warping and beaming machines:**
Automatic signal and stop motion for, Condit (*Chapin*), 316.
Constructing hecks and bobbins in, Condit (*Chapin*), 316.
Measuring, laying and picking warps in, Condit (*Chapin*), 316.
Winding covered elastic strands, Turner, 856.
Stopping, when an end breaks, Walmsley & Walmsley, 2332.
Spools or bobbins, Haseltine (*Bryant & Nichols*), 3644.
Greasing or waxing sized yarn in, Pilling, 4130.

**Washers.** *See* "Nuts."

**Washing and scouring fabrics, fibres and yarns:**
Wool, Gottheil (*Mehl*), 21.
Wool and other fibres, Petrie, 43.
Obtaining potash from "yolk" of wool, Murdoch (*Lesage*), 97.

**Washing and scouring fabrics, &c.—*cont.***
Wool, Holden & Holden, 114.
Clothes, linen, &c., Taylor, 357.
Clothes or linen, Clarke, 631.
Extracting oleaginous matters from suds, Benjamin, 682.
Treating wool liquors, Hughes (*Daudenart & Verbert*), 913.
Purifying water to dispense with soda, Smith, 1002.
Clothes, linen, &c., Storer, 1022.
Yarns after gassing, Rhodes, 1073.
Clothes and wool, Gedge (*Fabas*), 1193.
Clothes or fabrics, Bradford, 1273.
Clothes, Clark (*Marshall*), 1323.
Clothes, Pilling, 1464.
Combined washer and clothes wringer, Norman, 1832.
Driving and reversing gear for power machines, Taylor, 2398.
Clothes, Clark (*Scott & Scott*), 3170.
Clothes or fabrics, Bradford, 3338.
Wool, Bryant, 3364.
Propelling or driving machines, Monckton, 3509.
Fabrics or articles, Aspinwall, 3723.
Clothes, &c., Hawksworth & Chaffer (*Eaton*), 3808.
Fibres for paper pulp, Clark (*Chamas & others*), 3877.
Conducting wool, &c. to squeezing rollers, Clough, 4095.
Using baryta for scouring, &c. silk, Tessié du Motay, 4172.
Wool and other fibres, Hoyle & others, 4179.
Solid rubber rolls for machines, Clark (*Decoudun*), 4263.
Rotary machine for clothes, &c., Clark (*Decoudun*), 4264.
Linen and other textile fabrics, Clark (*Decoudun*), 4274.
And cleansing oiled and dirtied cotton waste, Kirton, 4299.

**Washing barley and malt in brewing.** *See* "Brewing."

**Washing bottles.** *See* "Bottles."

**Washing gutta-percha.** *See* "Gutta-percha."

**Washing minerals:**
Coal or slack and ores, Taylor, 889.
Coal and mineral ores, Edwards, 1861.
Or vanning gold, silver, copper & tin ores, Clark (*Frue*), 3556.
Buddles for washing ores, Clarke & Smith, 4448.

**Washing peat.** *See* "Peat."

**Washing roots:**
Potatoes, Topham, 1146.

**Washing sheep skins.** *See* "Leather."

**Washing-basins.** *See* "Lavatories."

**Waste fibres and yarn.** *See* "Rags."

**Waste iron (utilising).** *See* "Metal waste."

**Waste leather cuttings (utilising).** *See* "Leather."

**Waste or rags.** *See* "Rags."

**Watches.** *See* "Clocks."

**Watchmen's time detectors.** *See* "Tell-tales."

**Water-alarm for ships' holds.** *See* "Signals."

**Water-closets; earth-closets; commodes:**
Constructing and water measuring vessel for, Lamont, 226.
Water-waste preventers for, Tylor & Tylor, 277.
Controlling and preventing waste in flushing, Charles, 353.
Water waste preventers for, Dennis, 431.
Forming and ornamenting soil pipes, Harrop, 485.
Privies and dry earth closets, Harvey, 676.
Flushing and preventing water waste in, Robinson, 717.
Sanitary receiving pan or screen, Harvey, 865.
Portable and other commodes for ships, &c., Caffall, 988.
Flushing and disinfecting, Howard, 991.
Flushing and preventing waste, Pout, 1027.
Making working parts easy of access, Smeaton & Tylor, 1028.
Disinfecting and deodorising, Brown & White, 1061.
Flushing and trapping, Pearson, 1175.
Flushing and preventing waste in, Peters & Donald, 1207.
Regulating and measuring water in, Ronald & Farmer, 1215.
Disinfecting, Bonneville (*Burns & others*), 1271.
Discharge valves for ships' and other closets, Crawford, 1399.
Water-supplying and preventing waste, Crawford, 1590.
Disinfecting and deodorising, Bond, 1510.
Supplying waste water to privies &, Fowler & Husband, 1528.
Cistern to prevent waste in flushing, Brine & Allen, 1530.
Water waste preventer for, Underhay, 1732.
Supplying measured quantities of water to, Pontifex, 1733.
Arranging dry-closets and moving excreta from, Fisher, 2098.
Spring hinge for water closet seats, Wood, 2123.
Ash-closet and sifter for same, Willett & others, 2189.
Valves, for preventing water waste & trapping, Connell, 2274.
Self-flushing, by waste and refuse waters, Fowler, 2299.

**Water-closets; earth-closets; commodes—*cont.***
Valveless fluid disinfector for, Jones, 2466.
Discharge valves for ships' and other closets, Emery, 2542.
Ventilating, Mouly, 2566.
Deodoriser for, Monckton, 2581.
Applying japanned metal sheets to covering, Hughes, 2[illegible].
Water stop valves, Wise (*Biega*), 2605.
Dry-closets and disinfecting powder for same, Manning, 2[illegible].
Sifter and ash distributor for dry-closets, Bond, 2704.
Arranging valves in dry closets, &c., Garnett & Lyland, 2[illegible].
Combined flushing and disinfecting apparatus, Jones, 2[illegible].
Ash distributor and fœces separator for, Bond, 3330.
Flushing, trapping and preventing water waste, Lynde, 3[illegible].
Portable cesspool for, Bonnefin, 3384.
Combined earth-closet, sifter, dust-bin, &c., Green, 3[illegible].
Ashbins for and constructing dry-closets, Walter, 3[illegible].
Disinfecting paper for use in, Gutensohn, 3650.
Valve for regulating water-supply to, Pollard & Carter, 3[illegible].
Arranging trapping position of, Tylor, 3735.
Containing, measuring and supplying water to, Tylor, 3[illegible].
Liquid disinfectant for, and applying same to, Bond, 3[illegible].
Antiseptic paper for use in, Hart, 3894.
Regulators & valves or waste preventers for, Powell, 4[illegible].
Portable filtering and deodorising boxes for, Martin, 4[illegible].

**Water-cocks.** *See* "Cocks."

**Water-coolers.** *See* "Refrigerating."

**Water-cranes:**
Compressed air, Prall, 979.
Valves for, Payton, 2742.

**Watering and irrigating:**
Ozonizing water for, Monckton, 265.
By imbedded perforated pipes, Brown, 693.
Water cart or van for, Pearson, 2126.
Floors, lawns, bowling greens, &c., Hall & McLeish, 2[illegible].
Cart or distributor, Willacy, 2306.
Stop valves for hydrants and stand pipes, Wise (*Biega*), 2[illegible].
Portable stand pipe or hydrant and key, Clarke, 2[illegible].
Ball and other valves for stand pipes & hydrants, Payton, 2[illegible].
Self-closing cocks for hydrants, Mewburn (*Weston*), 2[illegible].
Adapting fire engines for irrigating, Foster, 2989.
Scroll disc rotary engine and pump for, Cooper, 3082.
Tubes and valves for hydrants, Atkins, 3101.
Plants, trees and seeds by capillary attraction, George, 3[illegible].
Arranging hydrants and water posts, Tylor, 3735.
Covers for stand pipes and fire plugs, Dowland, 3[illegible].
Machine for carrying hose for, Barton, 4059.
Locomotive steam-engine for, Bonneville (*Hoeard*), 4417.

**Watering game, poultry and birds.** *See* "Troughs."

**Watering streets.** *See* "Roads (cleansing)."

**Water-level indicators.** *See* "Gauges."

**Water-meters.** *See* "Meters."

**Water-posts.** *See* "Watering."

**Water-power engine governors.** *See* "Governors."

**Water-power engines; hydraulic motive-power:**
Overshot water-wheel, Buchholz, 17.
Combined steam & hydraulic engine to save fuel, Mansley, 7[illegible].
Reciprocating hydraulic, Lea, 2[illegible].
Feathering water-wheel, Van de Weerd, 245.
By the buoyant medium of air-tight vessels, &c., Worsnam, 27[illegible].
Rams for working pumps, organ blowing, &c., Joy, 3[illegible].
General construction, Kayser (*Schultz*), 468.
Diminishing friction in working, West, 662.
Lessening strain on turbine bearings, Teulon, 766.
Arranging and actuating valves, Robinson, 717.
Waterwheels, Mitchell, 740.
Utilising vertical motion of floating vessels, Browne, 8[illegible].
Rotary and reciprocating, Teulon, 939.
Waterwheels without shaft or axle ("anaxial wheel"), Gem-[betta, 1[illegible].
From the rise and fall of tides, &c., Templar, 1434.
Compressed air and water-weight engine, Spartali, 1[illegible].
Actuating valves of, Frost, 1619.
Stop-cocks for hydraulic engines, Herring, 1641.
Hydrostatic pressure apparatus, Wilkinson, 1643.
Transmission mechanism for, Lake (*Helmer*), 1[illegible].
Combined centrifugal pump, turbine, &c., Lüdeke, 17[illegible].
Liquid meters to be used as, Alexander (*Schmid*), 1[illegible].
Working slides and regulating pressure in, Davey, 1943.
Causing the flow of liquids for working, Kunstädter, 2[illegible].
For driving light machinery, Kunstädter, 2318.
Valve gear, Bremme, 2361.
Constructing pistons of, Perch & Higgs, 2452.
Rotary steam-engine adaptable as a, Higginson, 2553.
Water-wheel with levers, &c., Wirth (*Kleinpell & Dreamlery*). [2[illegible]

**Water-power engines, &c.—*cont.***

Constructing horizontal turbines, Lüdeke, 2663.
From the rolling motion of ships, Davies, 2687.
Submerged wheel and expansible buckets, Rischmuller, 2721.
Arranging ports in cylinder trunnions, Scott (*Haag*), 2758.
Oscillating, for either water or steam, Scott (*Haag*), 2758.
Combined centrifugal pump, turbine, &c., Lüdeke, 2850.
Horizontal turbines and overshot waterwheels, Lüdeke, 2850.
Forming hydraulic cylinder pistons, Whaley, 2856.
Arranging ports of, and reversing gear for, Knowelden, 2901.
Rotary, Sudlow, 2962.
Utilising the power of waves, Bonneville (*Devlan*), 3051.
From power generated in hydraulic presses, Walker, 3075.
For driving locomotives, portable engines, &c., Walker, 3075.
Reciprocating hydraulic engines, Higgs, 3237.
Employing two revolving pistons in rotatory, Pinhey, 3267.
For governing motion of saloons, &c. in ships, Bessemer, 3274.
Cylinder and valve arrangement for, Wilks, 3621.
From rolling of ships acting on suspended cargo, Cave, 3629.
Arranging and working valves in, Parker & Weston, 3658.
Hydraulic machinery for drawing tubes, Clifford, 4020.
Three cylinder hydraulic engines, Willans, 4189.
Using liquid-meters as motors, Muller, 4228.
Controlling and locking saloons in ships, Bessemer, 4258.
Combined air and water, Cave, 4269.
Hydrostatic motor, Bonneville (*Gaillet*), 4347.
Producing circular motion without cranks, Greey, 4357.
Double continuous water pressure engines, Felton, 4389.
Equilibrium slide valves; oiling same, Willis & Blick, 4420.
Force pump for supplying water for working, Truss, 4487.
Driving turbines, Anderson, 4489.

**Water-proof fabrics; water-proofing:**

Soap or dressing for, fabrics, &c., Johnson (*Cambon & Co.*), 18.
And ventilating overcoats, &c., Clark, 204.
Gum for, Lake (*Cattanach*), 423.
Compound for, Macintosh, 447.
Leather, Murdoch (*Picard*), 454.
Asbestos compound for, Hyatt, 478.
And ventilating over-coats, Frankenstein, 484.
Compound for, Bageau, 649.
Paper for wrapping up and packing, Clayton, 1037.
Cupro-ammonialised paper, Murrow, 1063.
Paper for "papyrographic process," De Zuccato, 1078.
Cartridge and other cases, Clark (*De Froideville*), 1275.
And glazing bricks and tiles, Atkinson, 1441.
Floor cloths and compound fabrics, Rowan & Reid, 1507.
Artificial or vegetable leather, Muratori, 1524.
Leather, Frankenburg, 1650.
Paper and fabrics, Jeyes, 1812.
Substance for ("Zapotine"), Conybeare & Naphegyi, 2106.
Floor-cloths and compound fabrics, Rowan & Reid, 2425.
Felts for domestic and out-door use, Job, 2433.
Boots and shoes, Bonneville (*Nevière*), 2590.
Gunpowders and cartridges, Davey & Watson, 2641.
Leather, Murdoch (*Picard*), 2686.
Cartridges for breech-loading fire-arms, Pieri, 2727.
Asphaltic fabric for roofing, Gedge (*Gaudefroy*), 2732.
Articles of clothing, tissues, &c., Griot & Polito, 2736.
Articles of artificial ivory, Cohen, 2780.
Fog signals, Jones, 3040.
Material for roofing, &c., Talling & Seccombe, 3048.
Fog signals, Jones, 3125.
Paper for "papyrographic process," De Zuccato, 3150.
Fabrics, by a compound of glycerine and soap, Nicoll, 3336.
Composition for paper and cloth, Hunstone & Thorpe, 3429.
Sheets or covers for packing, &c., Rourke, 3547.
Leather, &c. by a combination of tin foil, &c., Drury, 3574.
Composition for life-belts, &c., Count de Liancourt, 3599.
For ladies' wear, Flynt, 3718.
Inner sole or sock for boots and shoes, Achenbach (*Simis*), 3849.
Compounds, &c. for fabrics, paper, fibres, &c., Wilkinson, 4026.
Leather, Bird, 4295.
Artificial skins, Brown, 4459.

**Waterproofs for ladies.** *See* "Wearing-apparel."

**Water-supply to towns:**

Pressure regulator or controller for, Clark (*Casement*), 70.
Ozonising, Monckton, 265.
Water waste preventers for courts, alleys, &c., Underhay, 1753.
Collecting and storing rain water, Bessemer, 3319.
Forming conduits or pipes for, Gedge (*Granjon*), 3634.

**Water-wheels.** *See* "Water-power engines."

**Wax:**

Bleaching, by ozonising, Monckton, 265.

**Wearing-apparel:**

Hook or clip for suspending, Walker, 134.
Ventilating waterproof overcoats, Clark, 204.
Cutting button holes in, Clark (*Goodwin*), 364.
Embroidering and ornamenting, Heaven, 446.

**Wearing-apparel—*cont.***

Life preserving dress and air-buoy, Lake, (*Poole*) 473.
Safety pocket for securing watches, &c., Thwaites, 483.
Making and ventilating waterproof coats, Frankenstein, 484.
Insubmergible costume ("The Nataeur"), Gosselin, 514.
Buckles for trousers and waistcoats, Dethiou, 542.
Shirt-front waistcoat, Palmer (*Delarue*), 736.
Hook or fastening for, Clark (*Grut*), 875.
Hook for suspending, Clark (*Cole*), 953.
Waistcoat for carrying cartridges, Lake (*Black*), 978.
Artificial or vegetable leather for, Muratori, 1524.
Magnetising, Lyon, 1954.
Patterns for cutting out, Johnson (*Buttrick & Co.*), 2122.
Pin-lock-safety-fastener for, Pulvermacher, 2172.
For character impersonations, Morris, 2334.
Forming and arranging patterns for trowsers, Symes, 2406.
Using hammock coverings, &c. as coats, &c., Turner, 2484.
Fastening corners of pockets of, Davis & Strauss, 2560.
Insubmergible costume ("The Nataeur"), Gosselin, 2679.
Ornamenting or embroidering, Rigby, 3146.
Implement for fastening buttons to, Cramp, 3146.
Coats, riding habits, trousers, vests, &c., Dyson, 3394.
Weather protector and waterproof for ladies, Flynt, 3718.
Double coat (Paletôt or frock coat), Soul (*Brust*), 3885.
Trouser bottom protector, Norwood & Cutler (*Murphy*), 3888.
Treating reversible fabrics for capes, &c., Wilkinson, 4026.
Interlining overcoats with down, &c., Colquhoun, 4359.

**Weather guards for hats.** *See* "Hats."

**Weaving:**

Driving looms, Whiteley & Harling, 244.
Stripe motion in weaving striped fabrics, Cockerham, 309.
Ribbons and other narrow fabrics, Condit (*Chapin*), 316.
Scotch or other similar bonnets, Cunningham & Douglas, 336.
Using spun silk for crape, Kay & Richardson, 387.
Controlling warp beam, Pickup, 436.
Crank arms of looms, Shuttleworth, 437.
Damping warps in looms, Baron & others, 501.
Applying compressing rollers to looms, Clegg & Hoyle, 650.
Arrangement of "Dobbie" machine, Laird & Rutherford, 671.
Tubular and other fabrics, Laird & Rutherford, 671.
Ornamental fabrics, Connell, 675.
Employing self-acting clutch, Jackson & others, 707.
Applying rollers beneath breast beam, Barcroft, 792.
Punching and copying Jacquard cards, Litchfield, 798.
Preparing warps for elastic fabrics, Turner, 855.
Weft and stop motions, Sowden & Stephenson, 863.
Scotch or other similar bonnets, Cunningham & Douglas, 896.
Figured and fancy fabrics, Smith & others, 908.
Reversing motion of looms, Greaves, 933.
Twisted or bullion fringe, Davies & Lees, 1042.
Pellionies or saddle cloths, Robertshaw, 1044.
Tappets, cams or eccentrics for, Hattersley & Hebden, 1093.
Narrow fabrics, Haseltine (*Harrison & Richardson*), 1109.
Arrangement of "Dobbie" machine, Laird & Rutherford, 1304.
Tubular or duplex fabrics, Laird & Rutherford, 1304.
Warp delivery and tension gear, Smith, 1322.
Warp delivery and tension gear, Crabtree & others, 1439.
Power looms, Shaw & others, 1462.
Weft stop mechanism, Clark (*Nuttall & others*), 1539.
Supplying weft without stopping loom, Johnson (*Villeminot*), [1542.
Operating weft forks, Johnson (*Villeminot*), 1542.
Substitute for Jacquard and harness, Brewer (*Vitrant*), 1597.
Dobbie mechanism, Butterworth & Dickinson, 1655.
Hair into fringe, Clarke & Donisthorpe, 1704.
Take up mechanism of looms, Edge & Trevor, 1789.
Regulating yarn tension from the beam, Browne, 1803.
General construction of power looms, Heald, 1864.
Repeating machines for Jacquard cards, Bowker, 1999.
Colored quilts by "floating" the pattern, Grime, 2082.
Stopping looms, Lang & others, 2143.
Reps and similar goods, Robinson & Hird, 2146.
Operating tappets in swivel looms, Mortimer & Bateman, 2254.
Quilts or bed-coverings of dyed jute yarn, Kippax, 2264.
Regulating supply of warp to looms, Bland, 2436.
Repairing the "sweep" of loom crank shafts, Haggas, 2442.
Letting off warp from warp beams, Greenwood & Balme, 2469.
Knocking-off motion for looms, Cooke & others, 2477.
Tapes, ribbons and other small-wares, Johnson (*Burlock*), 2584.
Bugles, beads, &c. in fabrics, Salomons (*Eyssautier*), 2601.
Quilts, checks, ginghams, &c., Holstead, 2737.
Circular fabrics, Smith (*Poron & Poron*), 2774.
Narrow fabrics, Pearson, 2789.
Small-ware looms, Page, 2861.
Regulating delivery and tension of warps, Keighley, 2891.
Stop motion for looms, Portway, 2922.
Lists of different colors, &c. in fabrics, Barraclough, 2926.
Fancy borders of cotton fabrics, Taylor & Taylor, 2949.
Preventing grease, &c. being thrown on fabrics, Smith, 2970.
Air picking looms, Church, 3060.
Barred fabrics, Thomas, 3206.
Hair headings for fringes, curls, &c, O'Brien & Contrell, 3245.
Barred fabrics to avoid waste of warp, Thomas, 3286.
Fabrics for umbrellas, Thomas, 3335.

## Weaving—*cont.*

Fabrics for bodies, skirts, &c., Mähler & Mähler, 3349.
Elastic web or other narrow goods, Burlock (*Chapman*), 3350.
Large pattern or figured borders, Longworth & Jones, 3389.
Operating "Blackburn dobby," Longworth & Jones, 3389.
Fabrics for valances and draperies, Fry & Co., 3411.
Differential take-up and let-off motions, Ziffer, 3474.
Propelling or driving looms, Monckton, 3509.
General construction of looms, Knowles, 3519.
Shedding machine or dobby, Smith, 3529.
Actuating breast beam in looms, Gill, 3558.
Preventing damage from caught shuttles, Gillibrand, 3579.
Dress fabrics for ladies' wear, Munn, 3615.
Universal weft stop mechanism, Morgan-Brown (*Capon*), 3649.
Figured fabrics to imitate lace or net, Strang, 3651.
Plain triangular net fabrics, Strang, 3651.
Using "silk bits" in weft, &c., Bonneville (*Valentin*), 3660.
Reversing Jacquard apparatus, Pickard, 3684.
Jacquard; weighing and measuring apparatus, Broadbent, 3752.
Air picking looms, Church, 3773.
Jacquard apparatus and cards, Salomons (*Membré*), 3788.
Letting-off motion, Belicard & Roberts, 3835.
Weft stop mechanism, Stone (*Switzer*), 3860.
Preventing floats; stopping looms, Smith & others, 3898.
Quilts, towels, &c. in lace machines, Wright & Fox, 3903.
Lamp mats, chain tidies, &c., Curtis (*Hosmer*), 3941.
Shedding motion for dhooties, Dickinson & Parkinson, 3991.
Self-acting stop-motion, Murdoch (*Lejeune-Vincent*), 4039.
Warp delivery and tension gear, Smith, 4070.
Rectilinear web looms, Henderson (*Auroy*), 4105.
Producing figured borders, Longworth & Jones, 4135.
Battens for ribbon looms, Newton (*Schwartz*), 4156.
Transmitting "beat up" motion of cam to batten, Byrd, 4157.
Poplin and other tight cloths, Bayart & Bayart, 4197.
Harness curtains, blinds, screens, &c., Wilson, 4451.

## Weaving carpets, velvets and other pile fabrics:

Cutting or forming the pile, Brakell, 313.
Forming loops or pile in fabrics, Brakell, 313.
Wires or rods for piled fabrics, Norton & Hellawell, 381.
Asbestos pile fabrics, Hyatt, 478.
And cutting velvets, &c. woven as double cloths, Farran, 899.
Employing bobbins in lieu of shuttles, Mills (*Orne*), 1354.
Hearth or "beam" rugs, Smith, 1386.
Face to face and cutting pile, Shaw & others, 1462.
Looms and jacquards for two ply fabrics, Heald, 1864.
Ribbons, braid, galoon, or "Diamond velvet," Büsche, 1963.
Face to face and cutting pile, Bélicard, 2014.
Cutting or forming the pile, Brakell, 2599.
Forming loops or pile in fabrics, Brakell, 2599.
Shuttle-boxes of carpet looms, Holstead, 2737.
Arranging, &c. the "wire motion," Lake (*Cochrane*), 3098.
Barred fabrics with loops to form a pile, Thomas, 3206.
Barred fabrics with loops to form a pile, Thomas, 3286.
Securing rubber strands in elastic fabrics, Turner, 3297.
Patent velvet with dyed yarns or threads, Watson, 3671.
Preparing surface of velvets, &c. for being cut, Watson, 3671.
Letting-off motion, Belicard & Roberts, 3835.

## Weaving (harness and heddles):

Making healds of metal strips, Eastwood, 186.
Operating tappets for working healds, Whiteley & Harling, 244.
Arranging, in narrow fabric looms, Condit (*Chapin*), 316.
Actuating healds, Pickup, 436.
Knitting harness yarn to rig-bands, Lake (*Sladdin*), 719.
Actuating healds, Shaw & others, 1462.
Operating mechanism, Johnson (*Villéminot*), 1542.
Regulating tension to healds, Hodgson & Broadley, 2147.
Making heddles, Haseltine (*Kendrick Loom Harness Co.*), 2291.
Governing the throw of frames, Johnson (*Burlock*), 2584.
Operating levers for raising healds, Taylor & Taylor, 2949.
Knitting mail or other kinds of healds, Carr, 3513.
Operating mechanism, Knowles, 3519.
Vibrating tappets for actuating healds, Smith, 3529.
Making "harness boards," Fielding & Fielding, 3580.
Transmitting motion to healds or heddles, Broadbent, 3752.
Operating mechanism, Salomons (*Membré*), 3788.
Operating mechanism, Bland, 4327.
Healds and mails, Holding, 4364.
Compound Jacquard harness, Wilson, 4451.

## Weaving (lays and reeds):

Cleaning and smoothing reed dents, Foster & Whitaker, 143.
Movement of the lay or batten, Lacaze (*Capon*), 287.
For narrow fabrics, Haseltine (*Harrison & Richardson*), 1109.
Slays for fast or loose reed looms, Fell & Fell, 1328.
Operating reeds, Johnson (*Villéminot*), 1542.
Locking, &c. apparatus for "loose reeds," Catlow, 1622.
Reeds for two ply fabric looms, Heald, 1864.
Locking, &c. apparatus for loose reeds, Catlow, 1920.
Weaving buckles, &c. in fabrics, Salomons (*Eyssautier*), 2601.
Making reeds yielding in case of obstruction, Pearson, 2789.
Operating, in narrow fabric looms, Pearson, 2789.
Making and operating reed and batten separately, Page, 2861.
Rendering reeds "fast and loose," Gillibrand, 3579.

## Weaving (pickers):

Checking and lubricating spindles, Peel & Emsley, 47.
Adjusting picker strap, Bennett, 129.
Movement of, Lacaze (*Capon*), 287.
Breaking shock of, Pickup, 436.
Checking, guiding and lubricating, Peel & Emsley, 632.
Making whole or in detached parts, Peel & Emsley, 632.
Metal pickers with lock boxes and checks, Keighley, 666.
Fixing "check pick brackets" and oiling, Buckley, 1053.
Actuating picking tappets, Shaw & others, 1462.
Operating, to prevent shuttle sticking, Oldfield, 2341.
Disconnecting picking apparatus, Cooke & others, 2477.
Buffer and check, doing away with straps, Smith, 3970.
With two pegs to fit in recessed shuttle tips, Dawson, 3532.
Weaving picks without change wheels, Gill, 3558.
Working air pumps for air pickers, Church, 3773.
Forming holes in picking sticks for strap, Wright, 4114.

## Weaving (shuttles):

Checking and lubricating, Peel & Emsley, 47.
Employing "swages" in making tips, Kirk, 187.
Working change or rising boxes, Whiteley & Harling, 244.
India-rubber buffers for shuttle boxes, Pickup, 436.
Varying the tension in, Baron & others, 501.
Checking and driving, Peel & Emsley, 632.
Forming grooves in box bottom and cover, Peel & Emsley, 632.
Moveable bridge to obtain constant equal drag, Menzies, 735.
Carriers & guides, Haseltine (*Harrison & Richardson*), 1109.
Operating, Haseltine (*Harrison & Richardson*), 1109.
To avoid cutting weft, &c., Tinker, 1363.
Actuating shuttle boxes, Shaw & others, 1462.
Preventing waste of cop weft, Catlow, 1622.
Operating shuttle boxes, Butterworth & Dickinson, 1635.
Carriers and boxes for two ply looms, Heald, 1864.
Preventing waste of cop weft, Catlow, 1920.
For preventing "floates," Lang & others, 2143.
Constructing, Henderson (*Wells & Tabutieaux*), 2164.
Preventing shuttles sticking to picker, Oldfield, 2341.
Brush breaks for swivel, Mortimer & Bateman, 2254.
Making and connecting skewers, Booth & Tetlow, 2310.
Raising and lowering boxes of change, Cooke & others, 2477.
Device for throwing, Johnson (*Burlock*), 2584.
Changing rising and falling shuttle-boxes, Holstead, 2737.
Arranging, for narrow fabric looms, Pearson, 2789.
Direct action on stop rod in fast reed looms, Church, 3069.
Self-acting and self-releasing lock for, Church, 3069.
Hollow shuttle tips, Dawson, 3328.
Operating shuttle boxes, Knowles, 3519.
Shuttles and skewers to prevent pirn flying off, Dawson, 3532.
Hard wood pins for, Laycock, 3685.
To dispense with double weft, &c., Broadbent, 3752.
Shuttle box lids of air picking looms, Church, 3773.
Arresting flight of, Stone (*Switzer*), 3860.
Arranging for employing longer cops, Ireland, 3969.
Delivering thread or weft through centre of, Ireland, 3969.
Operating, Murdoch (*Lejeune-Vincent*), 4039.
Bringing peg to centre to prevent splitting, Wright, 4115.
Smoothing and polishing, Wright, 4115.
Constructing, and driving, Newton (*Schwartz*), 4156.
Shuttle pins to dispense with moveable pins, Smith, 4187.
Expansive shuttle spindles, Le Moyne, 4199.

## Weaving (temples):

Self-acting, Heywood, 984.
Constructing, arranging and operating, Oldfield, 2341.
Square nosed and segment, Goldschmidt & Chambers, 4062.

## Weaving wire. *See* "Wire-working."

## Wedges:

For machinery & securing same, Smith & Whittaker, 2166.

## Weighing-machines; indicating weight:

Pit bank and self indicating, Pooley & Greenwood, 128.
Combined system of coinage, measures and weights, Peak, 646.
Recording motion of scale beam, Johnson (*Redier & Co.*), 1207.
Weighing fibres in feeding carding-engines, Tatham, 2282.
Relieving gear and runner weight of platform, Bartlett, 2595.
Platform scales, Miller, 2964.
For use with sack fillers, sack hoists, &c., Wilkerson, 3347.
Weighing load lifted by steam cranes, &c., Taylor, 3388.
For letters, goods suspended by cranes, &c., Brockelbank, 3991.
Fibres in feeding carding-engines, Evans, 3730.
Weighing work done in Jacquard looms, Broadbent, 3752.
Automatic or self-registering, Parkinson & others, 4121.
Arranging springs, &c. of spring balances, Burg, 4200.

## Welding. *See* "Forging" and "Rolling."

## Wells:

Boring and sinking, Brydon & others, 1469.
Hand dredgers for sinking, Bull, 1625.
Blasting cartridge for sinking, Lloyd (*Holt & others*), 2363.
Free-faller system of sinking, Wübbel (*Bonningheus*), 3336.

**Wharle tubes.** *See* "Spinning.

**Wharves.** *See* "Harbours."

**Wheat crops (drying).** *See* "Drying."

**Wheel skates.** *See* "Skates."

**Wheelbarrows.** *See* "Barrows."

**Wheels for carriages; railway and tramway wheels:**

Rolling tyres, Parker, 7.
Coal pit waggon, Bonneville (*Lambert*), 110.
Magnetising railway, Monckton, 265.
Traction engine, with self-laying shoes, Burton, 338.
For central rail railways, Adorno, 512.
Combined cast iron and steel, Lauth (*Sleath*), 549.
With endless portable rails, Dunlop, 657.
Attaching railway wheel tyres, Wise (*Pratt & Parsons*), 659.
Casting, Light, 710.
Weldless tyres or hoops, Ashbury, 898.
Tram cars, one of each pair flanged, Carruthers & Rankine, 966.
Bicycle and common road, Grout, 1163.
Tire-rings for cylindrical carriages, Walker, 1164.
Shaping inner rim of railway, Crow, 1544.
Adapting tram-cars, &c. to run on rails or roads, Spill, 1586.
Auxiliary, for tram-cars, Greig & Burton, 1658.
Constructing and method of fixing, Sands, 1691.
Arranging for single and overhead railways, Smith, 1849.
Casting tyres subsequent to rolling, &c., Willans, 1911.
Fixing to axles made in half lengths, West & Brookes, 1914.
Fitting wheels to axle-boxes, Dobson, 1956.
To revolve independent of each other, Palmer, 1998.
Wheel guard for protecting the felloes of, Diss, 2109.
With endless portable rails, Clark (*Caillaux*), 2200.
Constructing and fixing tyres to, Scott, 2290.
Piling steel and ⊢ iron for making tyres, Griffiths, 2548.
Boring out wheel tyres, Atock, 2716.
Adaptable to run on rails or common roads, Small, 2745.
Railway wheel tyres, Haseltine (*Allen*), 2810.
India-rubber tyres, Bird, 2836.
Elastic, with body of metallic discs, Lake (*Meatyard*), 3046.
Fitting wide tyres to, when used on soft land, Grundy, 3067.
Coupling railway wheels, Morgan-Brown (*Chamberlain*), 3110.
Endless round bands for bicycle tyres, Ingram, 3437.
Malleable or wrought iron for common roads, Pickin, 3592.
Railway and tramway, with wooden bodies, Turner, 3794.
Expanding hub and radial spokes for gigs, &c. Starley, 3959.
Securing tyres to railway, Clark (*Mellon*), 3970.
Tyres with wooden treads and metal flanges, Smith, 3973.
Finishing crank bosses of locomotive, Reid & Webster, 4000.
Casting steel tramway wheels, Hadfield, 4184.
Compound railway, with wood cores, &c., Allen & Pullman, 4265.
Forming side projections on tyres, Allen, 4306.

**Wheels for machinery:**

Toothed gearing for horse-power engines, Avery, 144.
Device for causing wheels to revolve truly, Heaton, 189.
Roll-pinions of cast iron and steel, Lauth (*Sleath*), 549.
Casting disc wheels, Light, 710.
Carrying wheels of revolving vessels, Carrick & Wardale, 786.
Cutting toothed, Peer, 1497.
Toothed gear for tram-car and other engines, Spill, 1586.
For separating shafts in motion, Lake (*Corliss*), 1993.
Oiling intermediate gear, &c., Barber (*Crane*), 2343.
For operating tilt-choppers in cutting wood, Glover, 2638.
Hubs for, Brehmer, 2665.
Boring out and facing bosses, Atock, 2716.
Grooved toothed sewing, Haseltine (*Hahn & Pieper*), 2832.
Gyroscopic wheel or disc, Bessemer, 3274.
Gyroscopic fly wheels, Gray, 3552.
Worm wheels for driving valves, Mills (*Teal*), 4035.
Gear wheels for adjustable shafts, Small, 4159.
For propellers or breaks, Prichard & Jackson, 4165.
Grooved toothed sewing-machine, Gove, 4226.
Moulding toothed wheels, Heys, 4358.

**Whetting.** *See* "Grinding and sharpening."

**Whip (removing from fabrics).** *See* "Finishing."

**Whips.** *See* "Harness and saddlery."

**White lead.** *See* "Metallic salts."

**White metal.** *See* "Metallic alloys."

**Whitewashing ceilings.** *See* "Painting."

**Wicks:**

Incombustible asbestos, Hynam, 615.
Asbestos, for burners of hot air balloons, Ménier, 1144.
For night-lights, Payne & Freestone, 1541.

**Wicks—*cont.***

Of felted animal or vegetable fibres, Lefebvre, 1637.
Upper part of asbestos for lamps, Martin, 3247.
Substitute for plaited cotton lamp, Tandy & Smith, 4286.
Partially carbonized, for lamps, Shaw (*Halvorson*), 4310.
Of bath brick, for hydro-carbon oil-lamps, Weir, 4339.
Incombustible asbestos, Protheroe (*Protheroe*), 4462.

**Wigs.** *See* "Hair-dressing."

**Willows and openers.** *See* "Spinning (batting)."

**Winches.** *See* "Hoists."

**Wind gauges.** *See* "Anemometers."

**Wind guards for chimneys.** *See* "Flues."

**Winding and reeling yarns and thread:**

Footsteps and bolsters for spindles, Butterworth, 228.
Edge bobbins, Condit (*Chapin*), 316.
Imparting a traversing to and fro motion in, Hill, 341.
Yarn guide plates, Hill, 341.
Regulating tension or drag in, Coats, 469.
Without flyers, Kelley & others, 827.
Arranging and combining mechanism for, Wibberley, 887.
Reeling and gassing yarns at one operation, Rhodes, 1073.
Stop motion for winding frames, Unsworth, 1268.
Adjusting spindle bobbins, Booth (*Draper & Draper*), 1835.
Weft or cop winding, Henderson (*Wells & Tabutiaux*), 2164.
Forming cops of two or more twisted threads, Henchman, 2253.
Arranging and combining mechanism for, Wibberley, 3124.
Finished sewing thread in form of cops, Kerr, 3300.
And doubling yarns and threads, Smith, 3354.
Regulating tension or drag in, Hutcheson, 3418.
Self-acting stop-motion, for two or more yarns, Rostron, 3576.
Yarns, &c. preparatory to doubling, Stubbs & Corrigan, 4061.
Doubling and winding frames, Boyd & Boyd, 4119.
Pirn or cop winding machinery, Boyd & Boyd, 4119.
Spooling yarns or threads, Smith, 4385.

**Winding or hauling.** *See* "Hoists."

**Winding sewing-machine spools.** *See* "Sewing."

**Windlasses.** *See* "Hoists."

**Windmills:**

Regulating speed of, Greenwood, 1834.
Jambing or locking sails of, when adjusted, Vincent, 4102.

**Window-blinds:**

Raising, lowering and arresting; blind rollers, Smith, 452.
Weaving asbestos into coarse, Cleghorn & Paterson, 1145.
Rack pulleys, Batsford & Bloore, 1334.
Ventilating and dust-proof carriage and house, Rich, 1456.
Fastening tapes in "ladders" of Venetian, Roberts, 1467.
Check motion of Venetian, Cutts & Dean, 1506.
Fastening tapes in Venetian, Brown-Westhead, 1649.
Adjusting and fixing cords of, Harrison & Priestland, 1791.
Clamps for holding cords, Price & Warn, 1986.
Self-adjusting pulley, Festing, 2011.
Raising and lowering Venetian, Williams, 2133.
Breaks for rollers of, Roberts, 2182.
Endless bands for, Townsend, 2217.
Metallic blind rollers, Underwood & Phipson, 2229.
Breaks for roller blinds, Parry, 2298.
Marking tapes for Venetian, Brown-Westhead & Smith, 2610.
Raising and arresting Venetian and roller, Stubbs, 2910.
Guide for leading Venetian blinds clear of sash, Peck, 3348.
Sliding plates of rack pulleys, Nicholas, 3995.
Hanging and counterweighting, Whiteway, 4008.
Treating reversible fabrics for, Wilkinson, 4026.

**Windows; sashes and fastenings:**

Ventilating sash, Gedge (*Bradley Window Co.*), 91.
Hanging and arranging sashes and stiles, Williams, 315.
Opening and closing skylights, Smith, 452.
Sliding sashes, Jones, 645.
Sash fastener working on hinge principle, Cracknell, 692.
Sash fastener, Hopkinson, 694.
Illuminating roofs and skylights, Hyatt, 783.
For hansom cabs, saloon carriages, &c., Powell, 1254.
Latch for casements, Wheeler, 1377.
Dispensing with lines, weights and pulleys, Cole, 1401.
Raising and lowering sashes, Kaulbach, 1629.
Fireproof roof and ships' lights, Hyatt, 1715.
Winch for raising, &c., carriage and other, Adams, 1852.
Frames & sashes, raising & lowering, Barton & Withers, 1938.
Constructing and fireproofing ships', Brannon, 2028.
Raising, &c. landau carriage, Gedge (*Montegut & Barou*), 2125
Material for sashes and casements, Brannon, 2128.
Raising and lowering sashes, Williams, 2133.
Holding or sustaining sashes, Fletcher, 2227.

**Windows; sashes and fastenings—*cont.***

Fixing landau carriage, Scott, 2290.
Constructing wooden ribs for arched roofs, Lascelles, 2324.
Preventing rattling of and retaining sliding, Morgan, 2403.
Making and fireproofing sash-bars, Hyatt, 2550.
For admitting and filtering air for ventilating, Ball, 2583.
Reflecting glasses for deck-lights, &c., Hyatt, 2752.
Frames for; hanging and fastening sashes, Lloyd, 2904.
Hanging, opening, shutting and securing sashes, Cole, 2917.
Making brougham and other, to slide horizontally, Brown, 2996.
Holding, in any desired position and fastening, Hanson, 3036.
Forming openings in sheets to receive glass, Hyatt, 3171.
Fan, inner-dome, ceiling, roof, and sky-light, Hyatt, 3171.
Hatch, dead, deck, cabin and port light, Hyatt, 3171.
Clere-stories and louvres, Hyatt, 3171.
Readily removeable sashes, Anderson & Banks, 3285.
Self-acting sash fastener, Peck, 3348.
Forming wire cores for sash lines, Mewis, 3481.
Glazing greenhouses, &c. without putty, Elsdon & Ayres, 3497.
Fastenings of "nickelised" iron, Monckton, 3509.
Controlling the position of, Clark (*Lartigue*), 3771.
Applying wire gauze to sashes, Shepherd & Shepherd, 3969.
Glazing frames or sashes without putty, Pinder, 3990.
Hanging and counterweighting sashes, Whiteway, 4008.
Window guard, Dickie, 4169.
Lubricating axles of window pulleys, Stevenson, 4268.
Opening and closing hansom cab, Johnson, 4407.
Sky and other lights, Newton (*Foley & others*), 4445.

**Wine:**

Ozonising, Monckton, 265.
Boiler for, by "Pasteur's" process, Gedge (*Fabas*), 1193.
Preserving by refrigeration, Mort (*Nicolle & Mort*), 1573.
Attemperators and vats for making British, Hartley, 1768.
Liquid or solution for preserving, Clark, 1837.
Adapting refrigerators as wine coolers, Coles, 1848.
Glass lined attemperators and vats, Hartley, 3084.
Sugar for wine making, Garton, 3950.

**Winnowing machines:**

Hopper, screens and blowers of, Drechsler, 133.
Vibrating the screens in, Drechsler, 133.
Rice, Whalley, 222.
Powdered iron ore for making iron and steel, Lyttle, 2984.
And cleaning corn, Morgan-Brown (*Rose & Rose*), 4375.

**Winter gardens (heating).** *See* "Greenhouses."

**Wire; wire-working:**

Staples for leather work, Morgan-Brown (*Keniston*), 5.
Coating and covering telegraph, Truman, 124.
Springs for cloth-stretching and finishing, Stewart, 192.
Coating telegraph, Monckton, 265.
Coating and covering telegraph, Walker, 293.
For evaporating boilers of cold producers, Harrison, 383.
Compound for insulating telegraph, Macintosh, 447.
Coiling lead or soft metal wire, Harrop, 485.
Covering telegraph cables with lead, Harrop, 485.
Caps for bottle stoppers, Bonneville (*De Mestre*), 683.
Cards for carding-engines, Haley, 722.
Wire netting for gratings, bricks, &c., Hyatt, 783.
Tipping umbrella and parasol ribs, Corder & Foster, 804.
Using in sewing leather work, Clark (*Bourdais*), 1048.
Screws for boots, belts, &c., Lake (*Mundell & Partridge*), 1233.
In constructing cannons, Schultz, 1373.
As applied to making music type, Morgan-Brown (*Lourdel*), 1445.
Compressing iron wire for gun barrels, &c., Lvoff, 1479.
Softening and straightening steel for umbrellas, Fox, 1484.
Rolling steel for making, Fox, 1485.
Applying wire card clothing to bran dusters, McNally, 1518.
Applying, to night-light wicks, Payne & Freestone, 1541.
For piano-forte and other strings, Hamilton, 1590.
For training hop plants and fruit trees, Bowden, 1654.
Pointing, for needles, pins, card teeth, &c., Richardson, 1681.
Combining with sheet and plate glass, Hyatt, 1715.
Joining, &c. telegraph, fence and other, Eustace, 1766.
Tubing for ferrules, Lothrop, 1780.
Coating and covering telegraph, Zanni, 1855.
Weaving wire by steam power, Moore, 1919.
Wire belt elevators and belting, Greening & Greening, 2019.
For charcoal ventilators for drains, Johnson, 2020.
Rat, mouse, rabbit and other traps, Ferrari, 2056.
Silver-like alloy for making, Parkes, 2064.
Insulating telegraph wires, Conybeare & Naphegyi, 2106.
Straightening, measuring and cutting, Lord, 2118.
As applied for building and other purposes, Brannon, 2128.
Rolling iron and steel, Stanford & Bott, 2153.
Rolling, from old rails and rail ends, Dyson & Ward, 2183.
Muzzles for dogs and other animals, Mohr & Shammon, 2218.
Heddle clasps, Haseltine (*Kendrick Loom Harness Co.*), 2291.
Stay busks and clasps, Brewer (*Mc Lean*), 2629.
For making fish hooks, Newton (*Court & others*), 2729.
Convolute wire coils for call or signal bells, D'Humy, 2929.
Nails for boots, Morgan-Brown (*Richardson*), 2994.
Submarine cables, Highton, 3006.

**Wire; wire-working—*cont.***

Wire heads for pile fabric looms, Lake (*Cochrane*), 3096.
Joining, &c. telegraph, fence and other wires, Eustace, 3172.
Annealing, blueing and drying; saving fuel, Littlewood, 3198.
Coverings for bottle stoppers, Bonneville (*De Mestre*), 3271.
Suspenders or bearers for supporting, Entwistle, 3296.
For cotton openers and scutchers, Ashworth & Ashworth, 3461.
Twisting wires for cores of sash lines, ropes, &c., Mewis, 3481.
Of "nickelised" iron, Monckton, 3509.
Steel wire cards for carding-engines, Thornton, 3562.
Wire chimney tops to prevent down draught, Brierley, 3581.
Forming loops or eyelets on, Chamberlain & Wagstaff, 3670.
Drawing wire, Littlewood, 3675.
Connecting telegraph and fence wires, Timmins, 3690.
Regulating tension of wires, Davenport, 3842.
Fabrics for mattresses and seats, Schallehn (*Bröhs*), 3872.
Wiring hat and bonnet shapes, &c., Bowyer & Strupp, 4013.
For portable lattice and trellis work, Stevenson, 4230.
Covering telegraph wires, &c., James, 4261.
Knitting coverings for wires, Churchill (*Tiffany*), 4266.
Cards for carding-engines, Crosland, 4317.
Spiral conducting wires or cores for cables, Neave, 4475.

**Wood:**

Soap or dressing for preserving, Johnson (*Cambon & Co.*), 18.
Testing strength of, Haseltine (*Thurston*), 96.
Making mats of, Belier (*Roullier*), 213.
Drying, by heated air, Clark (*Ligny*), 323.
For road making, Hyatt, 432.
Fire-resisting asbestos plastic for coating, Hyatt, 473.
Waterproof mastic for coating, joining, &c., Bagnall, 649.
Composition for preserving and fireproofing, Muratori, 951.
Coating & preserving railway keys, sleepers, &c., Tugwood, 983.
Producing ornamental designs, &c. on, Lee, 1137.
Anti-fouling composition or paint, Jones & Howatson, 1173.
Combining fibrous materials with concrete, &c. ("Lignolite," ["Fibrolite," "Oleo-lignite," "Flexite," &c.), Brannon, 1246.
Coating, surfacing or ornamenting, Bluemel, 1307.
Treating, for road making ("wood macadam"), Morison, 1676.
Preserving from decay, Knowles, 1526.
Preserving timbers of vessels, &c., Brannon, 2028.
Substitute for ("Zapotine"), Conybeare & Naphegyi, 2106.
Preserving ("Prophylactic composition"), Burrell, 2268.
Imitating articles of, by "Plastique," Lake (*Bell*), 2269.
Bending timber for arches by rollers, Rothwell, 2464.
Drying, seasoning and removing sap from, Mc Neile, 2566.
Cockle-stove for drying, Perry, 2559.
Seasoning, Jones, 2669.
Transferring paintings to or ornamenting, Magny, 2723.
Extracting coloring matter from dye, Chenaillier, 2791.
India-rubber sheets for coating, Thomson & Watson, 2913.
Reducing, for paper and fabrics, Newton (*Mitscherlich*), 2969.
Ornamenting, to appear like inlaying, Mac Ewan, 3165.
Preserving, by salts of lead, &c., Clark (*Rogé & others*), 3382.
Composition or substitute for, in panels, &c., Odling, 3570.
Spent tan as a substitute, Murdoch (*Honnacij*), 3593.
Drying wood or lumber, Woods, 3711.
Treating, for road-making ("wood mosaic"), Morison, 3744.
Tubular or hollow articles of, Johnson (*Goulas & Co.*), 3968.
Smoothing and polishing veneers or, Wright, 4115.
Sockets for fixing and preserving posts, Hale, 4144.
Making hat shapes, &c. of, Johnson (*Jossmon*), 4282.
Imitating articles of, by "Plastique," Lake (*Bell*), 4343.

**Wood (boring and drilling).** *See* "Boring."

**Wood (cutting).** *See* "Cutting wood."

**Wood (printing).** *See* "Printing wood."

**Wool.** *See* "Fibres" and "Spinning."

**Workhouse berths.** *See* "Buildings."

**Working signals.** *See* "Signals."

**Workshops.** *See* "Buildings."

**Wrecks (raising).** *See* "Ships."

**Wrenches or spanners:**

For turning pipes, bars, &c., Griffin (*Austin*), 219.
Multiple tool and universal spanner, Baille, 668.
Key spanner for turning fire-bars, Martin, 899.
Clamping tool used as a screw wrench, Marsh (*Kinsey*), 1285.
Arranging a roller between jaws of, Browne & Moore, 2673.
Cam arrangement for spanners, Mc Nabb, 3296.
Ratchet monkey wrench, Macleod, 3994.

**Wringing-machines:**

India-rubber bearings for rollers, Marshall & Crosskill, 118.
Washing machine wringer, Taylor, 357.
Combined washing, mangling and, Storer, 1022.

Wringing-machines—*cont.*
Obtaining pressure on rollers, Bradford, 1278.
Combined washer and clothes wringer, Norman, 1832.
Roller gearing for, Lake (*Corliss*), 1993.
Driving and reversing gear for power machines, Taylor, 2393.
Rollers and gearing, Whiteside (*Howlett*), 2682.
Obtaining pressure on rollers, Bradford, 3338.
Receiving and carrying wool to, Bryant, 3364.
Feeding washed wool, &c. to squeezing rollers, Clough, 4095.
Carrying washed wool, &c. to rollers of, Hoyle & others, 4179.
Using solid rubber roll in, Clark (*Decoudun*), 4263.

Wristbands. *See* "Shirts."

Writing-cases:
Depositing nickel on metallic parts of, Underwood, 2953.
Depositing nickel on metallic parts of, Underwood, 3136.

Writing-desks. *See* "Furniture."

Writing-machines (type). *See* "Printing paper."

## Y.

Yarns and threads. *See* "Threads."

Yarns (preparing for weaving). *See* "Sizing."

Yeast:
Straining liquid or moisture from, Clark, 1453.
Artificial yeast powders, Johnson (*Eastwick*), 1846.

## Z.

Zapotine. *See* "Plants and trees."

Zinc (recovering). *See* "Smelting."

Zinc white. *See* "Oxides."

15 & 16 VICTORIÆ, Cap. 83. Sec. XXXII.

# SUBJECT-MATTER INDEX

OF

# PATENTS APPLIED FOR AND PATENTS GRANTED,

## For the Year 1875.

---

Printed and Published by Order of the Commissioners of Patents

UNDER THE

ACT of 15 & 16 VICTORIÆ, Cap. 83. Sec. XXXII.

---

LONDON:
PRINTED BY GEORGE EDWARD EYRE AND WILLIAM SPOTTISWOODE,
PRINTERS TO THE QUEEN'S MOST EXCELLENT MAJESTY.
PUBLISHED AT THE OFFICE OF THE COMMISSIONERS
OF PATENTS FOR INVENTIONS,
SOUTHAMPTON BUILDINGS, HOLBORN.

1876.

# SUBJECT-MATTER INDEX

OF

# PATENTS APPLIED FOR AND PATENTS GRANTED,

## For the Year 1875.

[The names printed in *Italic* are those of the persons by whom the inventions have been communicated to the Applicants for Letters Patent. The figures following the names are the consecutive numbers of the Applications.]


## A.

**Abdominal belts.** *See* Belts.

**Accordions.** *See* Musical instruments.

**Acids:**

Compressed air pump for raising, Rowland, 94.
Using furnace gases for making sulphuric, Lyttle, 105.
Generating carbonic acid gas, Johnson (*Bañolas*), 138.
Generating carbonic acid gas; chambers for same, Weare, 252.
Vessels for containing and transporting, Weare, 252.
Raising, in chemical works, Colebrook, 261.
Concentrating sulphuric, Chivers & Chivers, 343.
Cooling and purifying air in vinegar making, Pounsett, 447.
Separating sulphuric, from basic substances, Lyttle, 455.
Producing acetic and formic, Clark (*Lontin*), 473.
Saccharine solution for vinegar making, Maubré, 579.
Removing sulphuric, from its various bases, Lyttle, 627.
Concentrating sulphuric and other, Potter, 658.
Collecting sulphurous, Johnson (*Huet & Geyler*), 681.
Precipitating sulphuric, Newton (*Berrens*), 824.
Concentrating sulphuric, Morgan-Brown (*Hagemann*), 965.
Obtaining acetic, Nicholas, 1116.
Obtaining muriatic acid gas out of air, Brann, 1278.
Making sulphuric anhydride, Sonstadt, 1638.
Obtaining fatty acids, Hopkinson, 1667.
Obtaining soluble compounds of phosphoric, Prentice, 1758.
Utilising carbonic, generated in breweries, Walker, 1886.
Making hydrochloric, Hart (*Bennett*), 1976.
Producing carbonic acid gas, Mondollot, 2001.
Making vinegar from maize flour, Clark (*Chiozza*), 2007.
Collecting sulphurous, Bousfield (*French Copper Co.*), 2084.
Making arsenic and arsenious, Parnell, 2148.
Making acetic, Scoffern & Atcherley, 2234.
Obtaining chlorhydric, Griffiths & Thompson (*Guion*), 2460.
Producing sulphuric, Fitz-Gerald, 2481.
Regenerating hydrochloric, Fitz-Gerald, 2481.
Treating casks for storing, &c. vinegar, Dixon, 2609.
Obtaining carbonic, Rayner & Crookes, 2678.
Absorbing, &c. waste acid vapours, Rayner & Crookes, 2678.
Producing sulphuric, Johnson (*Vogt*), 2690.
Making liquid sulphurous, for freezing, &c., Pictet, 2727.
Obtaining phosphoric, Jones, 2770.
Making sulphuric, Burnard, 2873.
Concentrating sulphuric, Sauvée (*Faure & Kessler*), 2897.
Recovering nitric, in obtaining chlorine, Dow & Telfer, 3089.
Generating carbonic acid gas in ships, Cargill, 3152.
Recovering nitric, in obtaining chlorine, Dow & Telfer, 3153.
Liberators for vessels holding sulphurous & other, Adams, 3237.
Extracting phosphoric, Scott, 3262.
Producing Nordhausen oil of vitriol, Squire, 3278.
Vulcanite cocks for discharging, MacLellan, 3578.
Producing pyroligneous and sulphuric, Lyttle, 3579.
Forming hydrochloric and "phoric," Spence, 3628.
Alloy for use in evaporating sulphuric, Lake (*Holden*), 3785.
Making sulphuric, Deacon, 4318.
Pans for concentrating sulphuric, Prentice, 4391.
Plating platinum vessels for concentrating sulphuric, Prentice, [4392.

**Acoustic telegraphs.** *See* Telegraphs.

**Advertising; advertisements:**

Frames for exhibiting advertisements, Rideal, 113.
Materials for ornamenting surfaces for, Boggett, 526.
Advertising almanack, Whiteman, 1129.
Using blank side of bottle labels for, Jaap, 1431.
Mounting placards or posters and sheets for, Tucker, 1734.
Mounting show-cards & notices on metal plates, Tucker, 1734.
By receptacles attached to looking-glasses, Herbert, 1960.

**Advertising; advertisements—*cont.***

Envelopes for, Vaughan (*Goncér*), 1993.
On or by articles of furniture, Smith, 2212.
General advertising calendar, Gumprecht, 2237.
Device for holding cards, Lake (*Bannister & Milligan*), 2245.
Sign or lamp for tobacconists' shops, Kinder & Kinder, 3252.
Printing and producing show-cards, Manning, 3386.
Exhibiting opaque objects as advertisements, Bacon, 3480.
Printing notices, Powell & Dangerfield, 3533.
Using paper in waterclosets for, Bates & Money, 3905.
Encaustic inlaid tiles for, Hyatt, 4063.
Using stands or cases in shops, &c. for, Ross, 4087.

**Adzes.** *See* Axes.

**Aërated liquids; aërating:**

Mixing spirituous liquors with, in bottling, Holmes, 122.
Ale, beer, or cider in casks, &c., Lake (*Shepard & Seaman*), 761.
Using non-corrosive substances in apparatus for, Corry, 1318.
Making, free from foreign matters and preserving, Corry, 1318.
Protecting soda-water vessels, Bonneville (*Perlau*), 1524.
Beer, porter, wine, and other beverages, Walker, 1886.
Impregnating dough with air, Heinz, 2424.
Vessels for holding gas, and liberator for same, Adams, 3237.
Aërating feed-water of steam-boilers, Riches, 3750.
Ornamental receptacles for, Ross, 4087.
Double-action pump for use in making, Vaughan, 4466.

**Aërial-machines; balloons; aërostation:**

Rotary cellular engine for propelling, Boyman, 67.
Propelling and guiding, Cave, 140.
Or kites for military purposes, &c., Clark (*d'Esterno*), 160.
Purifying hydrogen gas for, Simmons & Morris, 289.
Generating fluids for aërial locomotion, Boulton, 574.
Inflating parachutes, &c., Caffall, 1655.
Propelling and steering balloons, Ménier, 1690.
Captive machine for reconnoitring, &c., Simmons, 2428.
Steering balloons, Biddle, 2901.
Combining the gas balloon and hot-air balloon, McKee, 2979.
Captive hot-air balloons, McKee, 2979.
Aërostat or air-ship, Jensen (*Vidal*), 3315.
Expanding parachutes, Blanchfield, 3799.
Steam flying machine, Smythies, 4151.
Propeller for, Sanderson, 4523.

**Ageing fabrics and yarns.** *See* Finishing.

**Agitating and stirring.** *See* Mixing.

**Agricultural implements.** *See* Tilling. Sowing, &c.

**Air and gas engines; pneumatic motive-power:**

Hot-air or hydro-pneumatic motors, Fisher & Rutherford, 56.
Applying and utilising heated air, Fisher & Rutherford, 56.
Rotary cellular, Boyman, 67.
Double-acting gas or petroleum engines, Abel (*Daimler*), 71.
Combined hot-gas and steam-engine, Boulton, 96.
Rotary and reciprocating, Higginson, 108.
Working engines by hot-air and steam, Vera, 175.
Cushioning explosive gas-engines, Mills & Haley, 265.
Clutch substitute for gas-engine wheels, Clements, 367.
Rotary, Johnson, 400.
Rotatory, Kaulbach, 542.
Generating gaseous fluids for engines, Boulton, 574.
Gaseous compound for actuating, Speir & Mather, 622.
Rotary vapour generator from liquified gas, Boulton, 680.
Utilising both the outward and inward stroke in, Dickson, 744.
Cushioning valves of, Justice (*Shaw*), 793.
Combined steam and pneumatic engine, Collingridge, 867.
With cylinders, &c. rotating round a fixed crank, Taylor, 893.
Compressed air locomotive, Abel (*Ribourt*), 1226.
New type of rotary, Barlow (*Deck*), 1277.
Reversing gear for single or double, Wakefield, 1282.

## Air and gas-engines, &c.—*cont.*

Hot-air or caloric, Lake (*Holdorff & Brückner*), 1313.
Self-acting lubricator for, Hare & Barton, 1385.
Reciprocating circular or partially rotary, Brakell, 1393.
Air vessels worked by atmospheric pressure, Yeomans, 1510.
Radially arranged cylinder, Payton & Holmes, 1567.
Rotary, Newton (*Babbitt*), 1676.
By air or gas pressing on toothed wheels, Creasy & Tully, 1692.
Air turbine or motive-power, Clark (*Worms de Romilly*), 1848.
Hydro-aërial wheels, Clark (*Worms de Romilly*), 1848.
Rotary, Johnson (*Lämmerhirt*), 1867.
Using carbonic acid gas of breweries as a motor, Walker, 1886.
Gas-engines, to avoid dead points, &c., Bruce & Antisell, 2016.
Compressed air or gas engine, Dann (*Guyot*), 2038.
Cushioning pistons and slide-valves of, Pickering, 2247.
Various forms of valves for, Weatherhogg (*Taylor*), 2278.
Cylindrical rotating valves for, Darlington & Thomas, 2302.
General construction of gas-engines, Smyth & Hunt, 2334.
New type of reversing and non-reversing, Higginson, 2463.
Direct-acting rotary, without cranks, &c., Vaile, 2470.
Wheel with hollow curved channels, Stalkartt, 2631.
Connecting pistons, &c. in, Messenger & Churchward, 2666.
Caloric & cold air engine, Brewer (*Van Gülpen & others*), 2917.
Worked by explosion of air and gas; valves, Hallewell, 2826.
Rotary air or gas engines, Tongue (*Chauveau*), 2961.
Rotary, to avoid dead centres, Fraser, 2990.
Rotary, working by hot-air or explosive gases, Weyhe, 3019.
Compressed air-engines; actuating valves, Bridgett, 3028.
Compressed air-engines, Gamboni, 3075.
Utilising expansive force of compressed gas, Young, 3137.
Hot-air engine pistons and valves, Lake (*Foster*), 3143.
Caloric engine; piston and partition for same, Stenberg, 3159.
Gas-motor engines, Crossley & Crossley, 3221.
Combined steam and air or gas, Porteous & Bruce, 3264.
Compressed liquid and gas-engine combined, Brin, 3274.
Rotary, Brae, 3276.
Combined valve for compressed air-engines, Saxby, 3326.
By pressure of air or gas on toothed wheels, &c., Monckton & [others, 3396.
Regenerative compressed and hot-air engine, Tongue (*Rider*), [3404.
Heated compressed air-motors, Lake (*Mekarski*), 3498.
Working gas-motors for raising, &c. liquids, Abel (*Otto*), 3615.
Preventing jerk of piston at end of stroke, Cunningham, 3621.
Rotary, Vacherot, 3828.
Mechanical horse worked by gas, Browne (*Chaine*), 3983.
Rotary caloric and explosive gas-engine, Weyhe, 4298.
Compressed air-engines; valves, for, & working same, Holt, 4316.
Explosive gas-engine, Ellerbeck & Syers, 4326.
Compressed air-engine auxiliary, Gamboni, 4334.
Explosive gas-engines, Alexander (*De Bisschop*), 4342.
Rotary compressed air-engines, Hodson, 4458.
Low pressure compressed air-motor, Wernekinck, 4521.
Wind-mill with horizontal shaft and wings, Sanderson, 4523.
Caloric engines, Bonneville (*Brown*), 4537.

## Air and gases (pumping, forcing, exhausting, and [compressing). *See also* Blowing:

Exhausting and compressing air in working breaks, Clark, 80.
Air-compressing pump, Rowland, 94.
Compressing air in explosive gas-engines, Mills & Haley, 265.
Rotary pump or exhauster for, Cory, 286.
Working air-pumps by ships' motion, Deverell & Tower (*De-* [*verell*), 308.
Compressing air for working breaks, Steel, 333.
Compressing air for working coal-getting machines, Stevenson, [387.
Rotary engine for forcing, exhausting, &c. fluids, Johnson, 400.
Compressed air apparatus for blowing glass, Smith, 450.
Air & gas compressor & steam-engine, Richardson & Ball, 564.
Compressing air for working breaks, Steel, 623.
Compressing air for working coal cutters, Alexander, 674.
Air-compressing engine valves, Alexander, 674.
Turbines & pumps for raising & forcing fluids, Reynolds, 724.
Rotary engine for exhausting air from mines, Cooke, 839.
Rotary pump or exhauster for pneumatic breaks, Smith, 875.
Steam-jet for exhausting and forcing, Cook, 938.
Rotary engine for exhausting air, &c. from mines, Cooke, 950.
Pneumatic or Bunsen vacuum pump, Morgan-Brown (*Hage-* [*mann*), 964.
Compressing gas for working railway signals, &c., Bland, 978.
Pump for respiratory apparatus and lamps, Abel (*Fayol*), 998.
Air or fluid compressor, Brotherhood, 999.
Fans for exhausting and forcing, Dronsfield, 1039.
Compressing air for raising and forcing liquids, Ingram, 1161.
Rotary air exhauster, Radford, 1173.
Exhauster for rotary engines, Barlow (*Deck*), 1277.
Engine for forcing or exhausting fluids, Brakell, 1393.
Compressing and utilising compressed air, West, 1401.
Receivers for storing compressed air, West, 1401.
Centrifugal pump for forcing air, Woodford & Woodford, 1531.
Air-pump for use in bottling liquids, Edwards, 1616.
Air-pump for speed indicators, Wier, 1668.
Spring packing and lubricant for air-pumps, Prior, 1809.
Pump for forcing, Wallace, 1816.

## Air and gases (pumping, &c.)—*cont.*

Jet apparatus for impelling, &c., Clark (*Worms de Romilly*), [1848.
Compressing air for cooling, &c., Willans (*Willans*), 1897.
Air or other fluid compressor, Edwards, 2013.
Air-compressing pump for prime movers, Dann (*Guyot*), 2038.
Compressing air for ice-making, &c., Clark (*Giffard*), 2044.
Cooling compressed air, Clark (*Giffard*), 2064.
Rotary gas exhauster, Simmons, 2105.
Compressing air or gas by steam-jet, Preiswerk, 2154.
Rotary pump or engine for forcing, Patrick, 2469.
Compressing or forcing air and fluids, Johnson (*Dieston*), 2485.
Engines or pumps for compressing, Steel, 2721.
Compressing air for working car breaks, Knapp, 2861.
Compressing air in machines for attaching boot heels, Morran- [Brown (*Brooks*), 2[illegible].
Air-compressor inlet and outlet valves, Greig & others, 3111.
Flexible pump or exhauster for breaks, cranes, &c., Smith, 3123.
Forcing coal-gas through purifying liquids, Wise (*Sevenoy*), [3179.
Non-condensing engines for exhausting fluids, Crosland, 3[illegible].
Compressing gas for working railway signals, &c., Bland, 32[illegible].
Rotary pumps for drawing and propelling gases, Brae, 3276.
Air-compressing engine valves, King (*Chisholm*), 3297.
Air-pump for pneumatic telegraphs, Norton & Lyle, 3343.
Double-acting force pump for, McMinn, 3457.
Air-compressing pump for speed indicators, Wier, 3534.
Air-compressing engines or pumps and working same, Benson [(*Cope & Maxwell*), 33[illegible].
Air-pump for ventilating & working same, Cunningham, 32[illegible].
Cooling and lubricating pumps, Eaglesham & Rigg, 3[illegible].
Air-compressor pistons, Bousfield (*Le Prince & Co.*), 4272.
Compressing air for working, air-engines, Holt, 4316.
Exhausting and compressing, for working motors, pumps, &c. [Preiswerk, 4[illegible].
Constructing and driving vacuum pumps, Fryer & Alliott, 4[illegible].
Air-pumps for condensing engines, Fryer & Alliott, 4[illegible].

## Air or water-proof fabrics. *See* Water-proofing.

## Air (purifying or filtering). *See* Filters.

## Air-blowers or fans. *See* Blowing.

## Air-currents (measuring). *See* Gauges.

## Air-gas. *See* Gas (making).

## Air-guns or pistols:

Darts for, Quackenbush, 3448.

## Air-pumps. *See* Air and gases (pumping, &c.).

## Air-supplying for miscellaneous purposes:

Aërator for refining metals by oxidation, Lyttle, 105.
In purifying molten iron, Baker, 327.
To filtered sewage water, Rydill, 399.
In making vaporised air or gas, Neuhaus, 668.
To smut machines, Van Gelder, 732.
To tan carbonising retorts, Murdoch (*Houzeau*), 1397.
For drying peat, &c., Hall & Bainbridge, 1469.
For vibrating violin, &c. strings, Hamilton & others, 1145.
To stoves, &c. for heating and cooking, Landan, 1674.
Steam jet injector for, Clark (*Worms de Romilly*), 1848.
For motive-power purposes, Clark (*Worms de Romilly*), 1848.
Tubular screw apparatus for, Walker, 1886.
In making malt, Kunkler, 1971.
In carburetting air, Schüssler, 2000.
In agitating pulp, &c. in making paper, Cooke, 2156.
For drying hanks of yarn, &c., Emsley & Smith, 2215.
In carburetting air; purifying same, Fageol, 2251.
For cooling sugar, brewing & distilling, Wawn & Willcox, 2541.
To pneumatic signalling apparatus, Canning & Joel, 2519.
Cold air for refrigerating, Foster, 2683.
In producing sulphuric acid, Johnson (*Vogt*), 2690.
In making steel, Wedekind (*Witthöfft*), 2941.
In stripping carder cylinders, Clark (*Kistler*), 3229.
In carburetting air, De Ewer & Bloomfield, 3236.
To revolving metal furnaces, Crampton, 3282.
In drying fruit, vegetables, &c., Oakes (*Reynolds*), 3443.
In raising sunken vessels and to divers, Parlour, 3445.
In cleaning, dressing, and hulling grain and seeds, Allin, 34[illegible].
In washing woollen yarns, cotton waste, &c., Kenworthy, 3[illegible].
For heating, cooling, and preventing loss of heat, Maw, 3[illegible].
Pneumatic feed for ruling & printing machines, Dinsmore, 3[illegible].
Blowing pig-iron before puddling, Bell, 3778.
In carburetting air, Hahn (*Daschbach*), 3831.
In making gas for heating, Jackson, 3841.
In puddling and refining iron, Casson, 3886.
In brewing, Barlow (*Galland*), 4079.
In cleaning corn, oats, &c., Morgan-Brown (*Rose & Rose*), 45[illegible].
In separating powdered ores, Parkinson, 4423.
In cleaning grain, bolting flour, &c., Childs, 4463.
Feeding printing-presses, &c., Newton (*Ashley & Ashley*), 4[illegible].

**Air-supplying to burners.** *See* Gas & other burners.

**Air-supplying to fire-places, &c.** *See* Fire-places.

**Air-supplying to furnaces.** *See* Furnaces.

**Air-supplying to lamps.** *See* Lamps.

**Air-supplying or ventilating.** *See* Ventilating.

**Alarms.** *See* Signals.

**Albums.** *See* Books.

**Alcohol; alcoholic liquids:**
Substitute for methylated spirit or, Mackay, 200.
Maturing, &c. spirits by sun-light, Shand, 213.
Tubular screw apparatus for refining & ageing, Walker, 1886.
Treating maize for making, Clark (*Chiozza*), 2007.

**Alcohol (distilling).** *See* Distilling.

**Alimentary substances.** *See* Preserving food.

**Alizarine.** *See* Dyes.

**Alkalies; alkaline salts:**
Using furnace gases for making sodic sulphate, Lyttle, 105.
Making sulphates of soda and potassa, Hargreaves, 147.
Furnaces for melting down, Willans, 157.
Forming phosphate of ammonia, Box & others, 181.
Forming phosphates of soda and potash, Box & others, 181.
Forming magnesian phosphate of ammonia, Box & others, 214.
Collecting ammonia in making sugar, Johnson (*Marot*), 408.
Obtaining carbonates of sodium and potassium, Lyttle, 455.
Producing, by dynamo-chemical means, Clark (*Lontin*), 473.
Stirring apparatus for furnaces, Schofield, 511.
Recovering, from waste liquors, Milburn & Jackson, 518.
Furnace, &c. for calcining soda ash, Milburn & Jackson, 518.
Calcining, &c. carbonate of potash, Milburn & Jackson, 518.
Calcining, &c. sulphate of soda, Milburn & Jackson, 518.
Producing ammonia, Clark (*Maxwell-Lyte*), 563.
Producing caustic soda, Lyttle, 627.
Making chromates & bichromates of soda & potash, White, 746.
Distilling ammoniacal waters, Wise (*Solvay*), 820.
Recovering ammonia, Scoffern & Tidcombe, 827.
Making sulphate of soda or potash, Mease, 977.
Obtaining ammoniacal liquor and salts, Nicholas, 1116.
Obtaining ammoniacal liquid and carbonate of ammonia in [crystals, Newton (*Sindermann*), 1216.
Furnaces for treating sulphates, Kuhlmann, 1265.
Furnaces for concentrating soda lyes, Kuhlmann, 1265.
Obtaining compounds of ammonia from smoke, Braun, 1278.
Producing black ash in revolving furnaces, Gaskell, 1323.
Forming sulphate of ammonia, Johnson (*Lissagaray*), 1484.
Blocks for making sulphate of soda or potash, Brock, 1502.
Sulphates of soda and potassa, Hargreaves & Robinson, 1576.
Obtaining and applying granulated soda, Mactear, 1714.
Separating soda sulphate from carbonate, Mactear, 1714.
Preparing salt for making sulphates, Stevenson, 1723.
Making sulphates of soda and potash, Jones & Walsh, 1864.
Calcining carbonates of soda and potash, Jones & Walsh, 1864.
Making ammoniacal salts, Clark (*Moerman-Laubuhr*), 1888.
Making sulphate of ammonia, Clark (*Moerman-Laubuhr*), 1888.
Making alkaline cyanides, Clark (*Moerman-Laubuhr*), 1888.
Extracting ammonia from cyanides, Clark (*Moerman-Lau-* [*buhr*), 1888.
Forming sulphide of ammonium, Hills, 1895.
Obtaining impure carbonate, Hills, 1895.
Treating salt for salt-cake, &c., Milburn & Jackson, 1917.
Obtaining phosphate of soda, Velge, 1924.
Making carbonate and caustic soda, Hart (*Bennett*), 1976.
Oven for calcining soda lye, Wood, 2076.
Obtaining ammonia from galvanisers' flux, Kenyon, 2112.
Making binarsenisate of soda, Parnell, 2148.
Decomposing ammoniacal liquors by, Wirth (*Gerlach*), 2174.
Producing sal-ammoniac, Wirth (*Gerlach*), 2174.
Making sulphate & nitrate of ammonia, Wirth (*Gerlach*), 2174.
Obtaining soda & bicarbonate of soda, Wirth (*Gerlach*), 2174.
Producing carbonate of soda, Imray (*Scherbaschaff*), 2271.
Obtaining muriate of ammonia, Rylands & Swindells, 2286.
Ammonia boilers for use in ice-making, &c., Coughlin, 2413.
Making bichromate of potash, Clouet, 2441.
Producing sulphate of potash, Clouet, 2441.
Treating waste in making sulphates, &c., Griffiths & Thompson [(*Guion*), 2460.
Producing sulphate of soda, Fitz-Gerald, 2481.
Making bichromate of potash, Heinzerling, 2669.
Producing hydrochlorate of ammonia, Wise (*Solvay*), 2775.
Making ammonia by the use of a cyanide, Wise (*Solvay*), 2775.
Distilling sea-wrack to obtain soda, Dufrené (*Glaisot frères*) [2815.
Obtaining salts of ammonia, Paterson & Brothers, 2880.
Inodorous furnaces for evaporating lyes, Rabot, 2925.

**Alkalies; alkaline salts—*cont.***
Burning or heating soda, Clark (*Gandolfo & Jarboe*), 3030.
Obtaining nitrates of, Dow & Telfer, 3089.
Obtaining nitrates of, Dow & Telfer, 3153.
Precipitating double phosphates, Clark (*Bonnard*), 3162.
Making "sodic potassic sulphide," Harpham & others, 3177.
Liberators for ammoniacal gas vessels, Adams, 3237.
Making ammoniacal salts, Morgan-Brown (*Elwert & Pack*), [3254.
Obtaining sulphide of ammonium, Scott, 3262.
Obtaining phosphate of ammonia, Scott, 3262.
Obtaining ammonia from "flux skimmings," Jones, 3336.
Making sulphate of soda and potassa, Robinson, 3358.
Utilising "tank waste" in making iron, Messrs. Raine, 3433.
Recalcining spent lime for soda ash, Thompson & Ladelle, 3535.
Making salt-cake, Norman, 3559.
Obtaining ammoniacal liquids, Lyttle, 3579.
Making phosphates of soda and potash, Spence, 3628.
Producing aluminate of soda and potash, Spence, 3628.
Producing phosphate of ammonia, Spence, 3629.
Obtaining ammonia from sewage, Slater, 3663.
Collecting ammoniacal liquor, Johnson (*Huyard*), 3759.
Alloys for use in & for evaporating borax, Lake (*Holden*), 3785.
Forming chromates of potash and soda, Townsend, 4162.
Regulating heat in soda ash furnaces, Riley, 4530.

**Alloys (metallic).** *See* Metallic alloys.

**Almanacs.** *See* Calendars.

**Alpenstocks:**
Adapting field glasses or telescopes to, Hoaking, 1379.

**Alum:**
Substitute for, in making paper, Mackay, 91.
From alunite, Johnson (*La Société Financière de Paris*), 704.
Tubular screw apparatus for evaporating, Walker, 1886.
Potassic, Johnson (*La Société Financière de Paris*), 1946.

**Alumina:**
Producing sulphate of, Johnson (*La Société Financière de* [*Paris*), 704.
Producing "alumino-ferric," Spence & Spence, 1704.
Obtaining soluble compounds of, Prentice, 1758.
Producing, for making mordants, Prentice, 1758.
Making sulphate of iron and, Spence & Spence, 1961.
Forming double salts from redonda phosphate of, Jones, 2770.
Producing oleate of, Sieber (*Gonin*), 3064.
Treating phosphates of, for products, Scott, 3262.
Recovering, used in purifying water, Durham, 3564.
Forming crude sulphate of, Rawson & Slater, 3703.

**Amalgamating metals.** *See* Smelting.

**Amalgamating or mixing.** *See* Mixing.

**Ambulances; litters; stretchers:**
Utilising trains as, in time of war, Johnson (*Rikli*), 1793.
Equilibrium ambulance waggons, Mayer, 2202.
Portable, for injured and bedridden persons, McLean, 4034.
For use in travelling by land, and as a sea-bed, McLean, 4034.
For use as a garden lounge and use of police, McLean, 4034.
Ambulance wheeled litter and stretcher, Manley, 4472.

**Amianthus.** *See* Asbestos.

**Ammonia; ammoniacal salts.** *See* Alkalies.

**Anchors (land tillage).** *See* Tilling.

**Anchors (marine):**
Floating, for disabled steamers, &c., Bullivant, 223.
Earth-boring augers applicable as, Jensen (*Bohlken*), 307.
Limiting motion of swivelled flukes, Lake (*Williams*), 2751.
Or projectile for communicating with vessels, Rogers & Ander- [son, 2755.
With moveable arms & guy rods jointed to shank, Price, 3582.
Two-armed tumbling, Inglefield & Lenox, 3906.
Water, for steering life-saving raft-boats, Dunn, 4006.

**Anemometers.** *See* Gauges (miscellaneous).

**Aniline.** *See* Dyes.

**Animal oils.** *See* Oils (animal).

**Anklets:**
Combined magnetic and crystalline, Whiting, 3345.

**Annealing, hardening, and tempering metals:**
Pots and stands for, Williams, 1915.
Toughening cast-iron for walking surfaces, &c., Hyatt, 2359.
Furnaces for annealing wire or strips, Smith & Smith, 2546.
Articles of malleable cast-iron, Tenwick, 3090.

**Annealing, hardening, &c. metals—*cont.***

Oven annealing box, and sight tube for same, Tenwick, 3090.
Heating annealing pots or ovens, Ratcliff & Ratcliff, 3155.
Hardening and tempering umbrella rib wire, Wright, 3194.
Beams, axles, rails, wheels, &c. in casting, Hyatt, 3201.
Combined annealing furnace and steam-boiler, Smyth, 3353.
Ovens for manipulating and, Smyth, 3353.
Hardening screw-bolts, nuts, screws, &c., Johnson (*Barba*), [3415.
Tempering and straightening saws, Lake (*Simonds*), 3529.
Formers for holding articles in, Lake (*Simonds*), 3520.
Or tempering sheet iron plates, Morris & others, 4504.

**Annealing furnace slag.** *See* Slag.

**Annealing glass.** *See* Glass.

**Anthracene:**

Oxidising, for alizarine, Heinzerling & McGowan, 1712.
Obtaining, from creosote oil, &c., Bresson, 4296.

**Anti-fouling compounds.** *See* Oxidation.

**Antimony:**

Smelting and refining, by oxidation, Lyttle, 105.
From cupreous solutions, Chadwick & Jardine, 2951.
Reducing sulphide of, White, 4495.

**Anvils:**

For rivet setting machines, Lake (*Bray*), 100.

**Apartments.** *See* Buildings.

**Apparature.** *See* Gums.

**Apples (press for squeezing).** *See* Presses.

**Aprons.** *See* Dresses.

**Aquariums:**

Adapting fountains to, Schildberg, 3359.

**Arches and viaducts.** *See* Bridges.

**Archimedean screws:**

For use in making chloride of lime, Riddell, 2316.

**Arithmetic (teaching).** *See* Teaching.

**Armillary photo-thermo-collectors.** *See* Photo, &c.

**Armlets (trimmings for).** *See* Trimmings.

**Armour plates:**

Backing for, of pulped wood, paper, &c., Monckton, 1884.
Substitute for, for ships and other structures, Baggeley, 4067.

**Aromatic liquors (distilling).** *See* Distilling.

**Aromatizing:**

Food bases with medicinal aromas, Hyatt, 2307.

**Arsenic:**

Producing metallic, Parnell, 2148.
Calcining poor and other ores for obtaining, Barnard, 2512.
Obtaining from cupreous solutions, Chadwick & Jardine, 2951.

**Artificial flowers, foliage, and fruit.** *See* Flowers.

**Artificial leather, wood, stone, fuel, manure, &c.** [*See* Leather. Wood. Fuel. &c.

**Artists' easels.** *See* Easels.

**Asbestos; amianthus (treating and applying):**

In making packing and coverings for surfaces, Fish, 9.
In fitting or connecting tubes, Johnson (*Constant*), 301.
To hydrocarbon furnaces, Borland (*Borland*), 3178.
In fire-proofing wardrobes, &c., Hosmer (*Shepard*), 3469.

**Ash-closets.** *See* Water-closets.

**Ash-pans.** *See* Fire-places.

**Ash-pits:**

Automatic ventilating apparatus for, Lanyon, 2715.

**Asphalte; bitumen; bituminous compounds:**

Asphaltum mastic for paving blocks, &c., Clark, 1230.
Moulding and compressing blocks of, Randolph, 1646.
Ornamenting asphalte surface by inlays, Hyatt, 2015.

**Asphalte; bitumen, &c.—*cont.***

Fluid or liquid asphaltum, Lake (*McClintock*), 2000.
Forming inlaid walking and weather surfaces of, Hyatt, 2319.
Retort for the distillation of asphaltes, Lyttle, 3378.
Producing, for use in making fuel, Lake (*McPherson*), 3022.
Bituminous or asphaltum mastics for paving, &c., Clark, 3042.
Bituminous mastics for rink floors, Clark & Spiller, 3066.

**Atmospheric breaks.** *See* Breaks for railways, &c.

**Atmospheric engines.** *See* Air and gas engines.

**Atmospheric hammers.** *See* Hammers.

**Astronomical clocks.** *See* Clocks.

**Astronomical instruments:**

Orrery, or earth, sun & planet instrument, Newton (*Allen*), 1423.

**Augers:**

For use without loosing handle, Wolverson, 763.

**Augers (earth boring):**

For fastening or securing objects, Jensen (*Bohlken*), 307.

**Autographic printing.** *See* Printing.

**Automatic breaks.** *See* Breaks for railways, &c.

**Automaton figures:**

Mechanism for actuating, Maskelyne & Clarke, 1934.

**Automaton toys.** *See* Toys.

**Awls:**

Tool-holder for, Soul (*Ascough*), 2962.
Forming shoemakers', Clark (*Williams*), 3331.
Applying various sized, to one handle, Bartleet & Johnson, 4[illegible].

**Awnings:**

Preserving, from decay, Clark (*Rogé & others*), 258.
Protective, for portable field batteries, Franzini, 2431.
Coverings for omnibuses, tram-cars, &c., Newman, 2909.
Hoods or parachutes for cots, &c., Henderson (*Boivin*), 3362.
Adjustable, and covers for same, Slater, 3391.
Waterproofing materials for making, Clamond, 4176.

**Axes; adzes; bill-hooks:**

Shafting axes, adzes, and similar tools, Brown, 363.
Attaching handles to bill-hooks, Lee, 991.
Forming eyes upon adzes, Chapman, 1823.

**Axles; axle journals; axle-boxes:**

Lubricating axles of rotary cellular engines, Boyman, 67.
Detecting flaws in railway axles, Wilson & others, 76.
Journal-boxes of railway cars; oiling device, Smith, 126.
Dust excluding plate for railway axles, Smith, 126.
Axle-boxes; system of oiling same, North (*Tomlinson*), 130.
Self-lubricating axles for coal trams and corves, Lupton, 16[illegible].
Half axles for road vehicles; fitting same, Dix, 203.
Lubricating apparatus for, Jeyes & Turner, 205.
Compensating axles for railway cars, &c., Harrison, 462.
Spiral journal springs, Byron (*Godley*), 5[illegible].
Covering railway, with steel rings, Morgan-Brown (*Figlino & Donna*), 72.
Making cranked axles by bending, Clarke, 854.
Oiling railway carriage and other, Somerset & Hayes, 1028.
Movable, for curves, Johnson (*Baßolas & Cartier*), 1023.
Lining for axle and journal-boxes, Newton (*Murfey*), 1[illegible].
Paper material for journals, &c., Newton (*Murfey*), 1[illegible].
Constructing railway axles in halves or pieces, Haddan, 1159.
Screw nuts with locking action for axles, Harris, 1222.
Oiling axle bearings of mining tubs or waggons, Walker, 1318.
Rolling flapped axles for carriages, &c., Abel (*Meunier*), 1[illegible].
Independent axles for traction-engines, Clark (*Millsbro*), 1[illegible].
Casting iron bosses on to wrought iron, Chalk & Chalk, 1[illegible].
Compound axle for rail and tramway carriages, Jones, 1[illegible].
Grinding axle-box guides and bushes, Handyside, 1762.
Passenger & gun carriage axles, Newton (*Davies & others*), 1[illegible].
Carriage axle-box in two parts, Barlow (*Gewies*), 2[illegible].
Journals & axle-boxes of tram-cars, Buret de Longagne, 2[illegible].
Connecting and disconnecting axles, Buret de Longagne, 2[illegible].
Couplings & gauge plates for axles, Buret de Longagne, 2[illegible].
Making tram-car axles in halves & setting same, Barclay, 2[illegible].
Constructing built-up cranked axles, Reynolds, 2[illegible].
Constructing built-up cranked axles, Reynolds, 2389.
Lubricating corve axle bearings, Ankers, 2[illegible].
Lubricator for journals of wheel axles, Burnett & Hornsby, 2[illegible].
Double bearing for carriage axles, Grice, 2[illegible].
Cort and other wagon axles, Hudson, 2677.
Axle for bicycles, Meyer, 2710.
Oiling axle-boxes; dust shields for same, Beattie, 2[illegible].

Axles; axle journals; axle-boxes—*cont.*
Ascertaining quantity of oil in axle-boxes, Beattie, 2792.
Carriage and other axles, and axle-boxes, Wise (*Anthoni*), 2828.
Lubricant for railway axles, Morgan-Brown (*Goldsmith*), 2922.
Lining for, Clark (*Lathrop Antifrictionate Co.*), 3148.
Oiling axles of railway and mine vehicles, Ellis, 3165.
Casting axles in heated moulds, Hyatt, 3201.
Machine for magnetising axles, Alexander (*Bürgin*), 3243.
Road carriage axle-boxes, Lake (*Leverich*), 3275.
Hollow axles, filled with water, Chapman (*Livesmore*), 3403.
Moulding and casting axle-boxes with screw, Norfolk, 3574.
Railway carriage axles in two parts, Glaskin (*Faulkner*), 3877.
Roller bearing for tram-car, &c. axles, Hoadley, 4124.
Oiling axles of coal tubs, Bainbridge, 4304.
Traction-engine, &c. axles for turning curves, La Fors, 4383.
Raw hide bearings or linings for journal-boxes, Lake (*Hathaway & others*), 4456.
Connecting truck or trolly wheels to axles, Souheur, 4499.

## B.

Baby-supporters. *See* Supports.

Badges for cabmen. *See* Sign.

Bags; sacks; reticules; satchels:
Operating spiral needles in sewing, Garland, 229.
Sewing-machine for making, Vosper & Rogers, 251.
Buckle locks for fastening straps of, Walton, 299.
Suspending muff and other, to boas, &c., Kosminski, 522.
Handles for, Evans, 552.
Filling bags with grain, salt, &c., Goodwin, 559.
Packing and compressing hops into bags, Tebbs, 692.
Sacking elevator for corn and seeds, Sainty, 708.
Artificial leather or cloth for, Block, 718.
Snap-hooks for satchels & travelling bags, Johnson (*Nye*), 766.
Fastenings for satchels, Rollason & Wood, 1407.
Suspending muff and other, to boas, &c., Kosminski, 1727.
Fastenings for muff and other like bags, Kosminski, 1727.
Cementing cloth and paper together for, Smieton, 1731.
Sack-lifter, shooter, and loader, Sinkwell & Tooley, 1908.
Bag for tea-rolling machines, Haworth, 1959.
Coating fabrics for making, Newton (*Requa*), 2074.
Making india-rubber coated, Newton (*Requa*), 2075.
Sewing-machine for stitching, Garland, 2248.
Fasteners for, Haseltine (*Miller & Hill*), 2314.
Dressing or preparing leather for, Tombs, 2333.
Sack for carrying soldiers' cloaks, Huch, 2483.
Overseam sewing-machine for making, Boone & Detrick, 2553.
Ornamental material for bags, Cadman, 2580.
Making bags of slips of wood, &c., Jones, 2785.
Overhead sewing-machine for making, Young, 2944.
Fastenings for bags, Pearson, 3183.
Reticules and travelling bags in book form, Van Dyk, 3212.
French vegetable leather for covering travelling bags, Tongue (*Jolissaint-Vonèche & others*), 3290.
Paper-lined cloth fabric for making bags, Smieton, 3684.
Standard for the fitted boards of travelling bags, Wolfsky, 3737.
Combined grain, &c. weighing-machine, sack-filler, & automatic register, Goodwin, 3765.
Duplex shuttle machine for sewing sacks, Coignard, 3767.
Weaving seamless, Haworth & Thomson, 3937.
Leather covered handles for bags, Myring, 4097.
Machine for sewing grain, Webster, 4146.
Waterproofing materials for making sacks, Clamond, 4176.
Applying electric briquets or lighters to travelling bags, Lake (*Van Tenac*), 4206.

Balances or scales. *See* Weighing.

Bale-ties. *See* Packing.

Ball and socket joints:
For gas pendants and chandeliers, Cannon, 294.
For steadying ships' furniture, Wirth (*Wertheim*), 637.
For photographers' head rests and stands, Johnson, 1777.

Balloons. *See* Aërial-machines.

Ballot apparatus. *See* Voting.

Balusters. *See* Buildings.

Bands and belting for machinery:
Leather substitute for mill bands, Gandy, 52.
Endless, for driving spindles, &c., Ramsden, 221.
Preserving yarns, &c. for making, Clark (*Rogé & others*), 288.
Mounting, for driving spindles, Binns, 336.
Warp fabrics for and method of making, Boucley, 451.
Sheep skin "lashing laces," Granville & Timmis, 643.

Bands and belting for machinery—*cont.*
Artificial leather or cloth for, Block, 718.
Forming & covering cores for long lengths of bands, Binns, 1037.
Making and fastening ends of, Durrance & others, 1131.
For spinning & winding machinery, Durrance & others, 1131.
Preventing belts from riding or entangling, Roberts, 1229.
Tying knots in joining ends of, Wise (*Kay*), 1461.
Metal chains as a substitute for, Goubet & Monrocq, 1560.
Apparatus for carrying machinery bands, Stevens, 1612.
Fastening or joining, Roberts & Roberts, 1623.
Using waste healds for making banding, Booth & Watson, 1716.
Applying tension to tapes or bands, Finlayson, 1819.
Dressing or preparing leather for, Tombs, 2333.
For working sewing machine needles, spooler, &c., Hughes, 2466.
Rubber belting, Bousfield (*Scholes & Cowper*), 2482.
Belt-fastener, Patrick (*Roe*), 2741.
Belt-fastener; securing same, Fairbank & Hollings, 2818.
Gauge for use with belt punches, Fairbank & Hollings, 2818.
Self-tightening, for rolling mills, Imray (*Hahn*), 2903.
Securing canvas layers in india-rubber, Harris, 2957.
Metallic belt-fasteners, Harris, 2982.
Arranging driving bands in spinning frames, Carter, 3060.
Fastenings for joining or uniting, Pearce, 3083.
Splicing or making straps or belts, Roberts & Roberts, 3257
Tightening carding-engine driving bands, &c., Taylor, 3562.
Preventing slip, &c. of endless ropes, chains, &, Roberts, 3723.
Connecting and repairing driving straps and, Stoneham, 3755.
Belt-shipping mechanism for warping machines, Henderson (*Moulton & others*), 3916.
Making, from intestines, &c. of animals, Macintosh, 4031.
Tightening device for sewing-machines, Clark (*Febvre & others*), 4147.
Tightening arrangement for driving, Demmer, 4218.
Countersinking rivets in, to prevent slipping, Booth, 4332.
Steel cramps for joining ends of, Ehrhardt, 4374.

Bands and belts for wear. *See* Belts.

Bands or strips (not defined):
Fastener for connecting ends of, Whiteman, 1129.

Bank vaults. *See* Buildings.

Barges. *See* Ship-building.

Bark:
Grinding and "rossing," Hunt (*Thompson & Nowell*), 4235.

Barley mills. *See* Grain and seeds (treating).

Barometers:
As applied to pressure indicators and alarms, Bagot, 945.
Of two (liquid and gas) thermometers, Hans & Hermary, 2147.
Clock for indicating atmospheric pressure, Stanley, 4130.
Combined instrument with barometer, &c. (The "Mensor"), Henderson, 4363.

Baroscycles. *See* Velocipedes.

Barrels. *See* Casks.

Barrows; hand-trucks:
For carrying peat paste, Morgan-Brown (*Verdier*), 654.
Convertible hand and wheel-barrow, Huthwaite, 2427.
Ball and socket caster for trucks or hand barrows, Jeyes, 3388.
Wheel-barrow with tipping body, Johnson (*Philippe*), 4157.

Baryta:
Crushing and reducing, to powder, Cole, 110.
Preparing hydrate of, Lyttle, 455.
Producing hydrate of, Lyttle, 627.
Grinding, crushing, &c. by centrifugal force, Lucop, 1429.
Substitute for barium sulphate, Griffiths & Thompson (*Guion*), 2402.
Substitute for sulphate of, Griffiths & Thompson (*Guion*), 2460.
Retort for deoxidating baric sulphate, Lyttle, 3579.

Baskets; skips; hampers:
Paper material for mill skips and, Gandy, 52.
Combining glass, &c. for ornamental, D'Humy, 1710.
Peeling osier and other basket rods, Bremerkamp, 2206.
Gauges for making skips, hampers, and, Schofield, 2578.
Making, of slips of wood, &c., Jones, 2785.
Fabric for making fruit and bread, Paton, 3119.

Batching jute. *See* Spinning (batting).

Bathing dresses. *See* Dresses. Wearing-apparel.

Baths:
Ventilating bath rooms, Potts & Darnell, 272.
Stench-traps for, Buckley & Stock, 378.
Heating water for, Smith, 520.
Traps for overflow pipes of, Middleton, 1506.

**Baths—*cont.***

Generating vapours for medicated and vapor, Harper, 1652.
Consuming smoke in generators for, Gedge (*Dubois*), 2175.
Duplex and triplicate construction of, Shanks, 3188.
Brushes for, Barker, 3329.

**Batteries (galvanic).** *See* Electricity (generating).

**Batteries or fortifications:**

Using mattresses as temporary, Cornish (*Cornish*), 577.

**Batteries or mitrailleurs.** *See* Fire-arms.

**Batting.** *See* Wadding.

**Batting fibres.** *See* Spinning (batting).

**Bayonets; swords:**

Securing sabres to belts, Johnson (*Nye*), 766.
To dispense with scabbards and to carry on rifles, Rochaz, 2396.
Using bayonets as spades or scoops, Rochaz, 2396.

**Beacons.** *See* Lighthouses.

**Beadings.** *See* Mouldings.

**Beaming machines.** *See* Warping.

**Beams; girders; rafters:**

Employing chains when rigid for, Owen & Binns, 1312.
Protecting, against fire, Hyatt, 2015.
Drilling girders in situ, Buckton & Wicksteed, 2039.
Making, of cast and wrought iron, Hyatt, 2359.
Mill for rolling various forms of, Imray (*Hahn*), 2684.
Punching or perforating girders, Heaton, 3040.
Combined cast & wrought metal joists, girders, &, Hyatt, 3201.
Attaching cast to wrought metal beams, Hyatt, 3201.
Testing metal girders, Carrington, 3419.
Lattice rafters for tile-covered roofs, Hyatt, 4063.
Brick rafters for mansard and other roofs, Hyatt, 4063.
Casting metal lattice rafter gratings, Hyatt, 4063.
Forming, of flat plates with strengthening web, Dawes, 4110.

**Bearings; bushes; steps; plummer-blocks:**

Or footsteps for upright shafts, spindles, &c., Collingwood, 79.
Railway car journal bearings; oiling same, Smith, 126.
Covers for spindle steps to prevent oil waste, Palmer, 345.
Bushing upper end of copping rail tubes, Elce, 366.
Paper cutting machine bearings, Kritch, 464.
Spiral bolster springs, Byron (*Godley*), 550.
Car-axle bearings, Johnson (*Bañolas & Carlier*), 1023.
Self-lubricating bolsters, steps and, Newton (*Murfey*), 1025.
Bushes and bearings for hydro-extractors, Broadbent, 1144.
Nuts with locking action for plummer-blocks, Harris, 1222.
Axle-bearings of mining tubs, &c.; oiling same, Walker, 1319.
Wooden block for pump, Woodford & Woodford, 1531.
Lining liquid meter bearings, Jennings & Pocock, 1599.
Grinding axle bushes, Handyside, 1702.
Bushing for wheels, Newton (*Davis & others*), 1735.
Lubricant for plummer-blocks, Gedge (*Honoré*), 1923.
Composition for lubricating and cooling, Wilkins, 2012.
Compound for making spinning machine steps, Tice, 2275.
Anti-friction bushes and wheel centres, Bond, 2317.
Moveable bushes for hay-making machines, Jeffery, 2414.
Open topped, for holding mandrils, Davies & others, 2586.
Lubricating curve axle bearings, Ankers, 2593.
Double bearing for carriage axles, Grice, 2660.
Pitman or connecting rod bearings, Lake (*Harrison*), 2774.
Bearings for mills, forges, tin works, rollers, &c., Jones, 2822.
Bush for springs, wheels, axle-boxes, &c., Wise (*Anthoni*), 2828.
Boxes or riders for rolling mill rolls, Imray (*Hahn*), 2903.
Anti-friction, Clark (*Lathrop Antifrictionate Co.*), 3148.
Lubricators for, Coux des Roseaux, 3202.
Annealed glass bearings for engines, Monckton, 3307.
Spindle bearings; lubricating same, Grether, 3370.
Preventing overheating of, Chapman (*Livermore*), 3403.
Bearing feelers & automatic lubricators, Alley, 3413.
Moulding and casting bushes with screw, Norfolk, 3574.
Friction roller, for centrifugal machines, Rammell, 3587.
Roller, for axles, shafts, plummer-blocks, &c., Hoadley, 4124.
For axles of coal tubs, Bainbridge, 4304.
Raw hide, for shafts & axles, Lake (*Hathaway & others*), 4456.

**Beating cotton, &c.** *See* Spinning (batting).

**Bed-clothes (disinfecting).** *See* Disinfecting.

**Bed-coverings.** *See* Upholstery.

**Bedsteads.** *See* Furniture.

**Beer (aërating).** *See* Aërated liquids.

**Beer (bottling).** *See* Bottles.

**Beer (brewing).** *See* Brewing.

**Beer-engines:**

Dispensing with valves in pump barrel & bucket, Booth, 1115.
For drawing different kinds of liquor, Booth, 1115.
Drawing-off liquors by pressure in barrel, Edwards, 1614.
Tap to be used in conjunction with, Butterworth, 1228.
Drawing beer, &c. without tilting cask, Miles & Tonge, 2384.
Registering each glass, pint, &c. drawn from, Rimington, 3632.
Combination taps & valves for suction pipes of, Ashton, 4092.
Connecting pipes of, to casks, Crowther, 4074.
Drawing beer from barrels without tilting, Hill, 4111.

**Bees (catching).** *See* Insects.

**Beetles (catching).** *See* Insects.

**Beetling fabrics and yarns.** *See* Finishing.

**Beetling paper.** *See* Paper (making).

**Beetroot (pressing or squeezing).** *See* Presses.

**Beetroot sugar.** *See* Sugar.

**Bellows.** *See* Blowing-engines.

**Bells; gongs:**

Call-bells and actions for same and other, Stormont, 1.
Electric, for railway fog signals, Sington, 57.
Or gongs for rotary cellular engines, Boyman, 67.
Producing steel for making, Clark (*Byquom*), 256.
Call or signal bell apparatus, Brooks, 476.
Magnets for actuating electric, Faulkner, 1800.
Combined door-fastener, alarm, and call-bell, Bacon, 2303.
Self-adjusting indicator for electric, Morton, 3431.
Piles or batteries for electric, Lake (*Van Tenac*), 4206.

**Belts and bands for wear; girdles:**

Leather substitute for making, Gandy, 52.
Belt fastening, Pendleton, 337.
Fastener for, Walker, 762.
Securing sabres to, Johnson (*Nye*), 766.
Life-belt, Watts, 896.
Fastening for, West, 1287.
Abdominal belts, Wymer, 1463.
Shields for forming, Sèches, 2536.
Ornamental material for ladies' belts, Cadman, 2580.
Adapting life-saving, to waterproof garments, Meiter, 2836.
Hydropathic abdominal belt, Dale, 3168.
Magnetic and crystalline abdominal belts, Whiting, 3345.
Lever buckles for, Eyland, 3409.
Waist and abdominal belts of paper, Loder, 3531.
Lever buckles for, Harrison & Priestland, 3667.
Magnetised girdles, Welton, 3727.
Fasteners for bands, Mappin, 3832.

**Belts for machinery.** *See* Bands.

**Bending by pressure.** *See* Presses.

**Bevels.** *See* Mathematical instruments.

**Beverages:**

Saccharine solution for making cider and perry, Manbré, [illegible]
Preventing cider becoming dead or flat in casks, Lake (*Sheppard & Seamen*), [illegible]
Compressing effervescing powders, Hyatt, 1451.
Mixing or preparing toddies and negusses, Williams, 2941.
Combined mixer, measure, & crusher for toddies, &c., Williams, [illegible]
Milk-beer, spirit or alcohol of milk and milk liqueur, Johnson (*Kokosinski & others*), [illegible]
Unfermented, from wine-making refuse, Hely, 3066.
Invigorating beverage or liquor, Eccles, 3371.

**Bicycles.** *See* Velocipedes.

**Bidons.** *See* Bottles.

**Biers and hearses.** *See* Carriages.

**Bilge pumps.** *See* Pumps.

**Bill-hooks.** *See* Axes.

**Billiards; billiard cues.** *See* Games.

**Bill-sticking brushes.** *See* Brushes.

**Binding books and papers.** *See* Books.

**Binding or gaveling grain.** *See* Reaping.

**Biscuits.** *See* Bread.

**Bismuth:**

From cupreous solutions, Chadwick & Jardine, 2861.

**Bitumen; bituminous compounds.** *See* Asphalte.

**Black-ash.** *See* Alkalies.

**Blackboards (holding).** *See* Teaching.

**Blacking:**
Ingredients for and making, for leather, &c., Coombe, 287.
For leather, &c. unaffected by damp, Bell, 4105.

**Black-lead.** *See* Plumbago.

**Black-plates (pickling, &c.).** *See* Coating metals.

**Blast-engines.** *See* Blowing.

**Blast-furnaces.** *See* Furnaces.

**Blasting; blasting compounds:**
Rock reamers for use in, Mills (*Siprell*), 246.
Powder for, Espir (*Le Bricquir*), 291.
Removing submarine rocks, Alley, 1522.
Matches and fuses for, Spill, 1739.
Gunpowder charges for, Murdoch (*Müller*), 1885.
Portable electric battery for, Gardner (*Mowbray*), 2132.
Compressing powder for, Murdoch (*Müller*), 2135.
Compound or "vigorite" for, Nordenfeldt (*Bjorkman*), 2459.
Treating vegetable fibre for, Dittmar, 3088.
Safety powder for, Lake (*Courtaille*), 3217.
Using compressed air, water, &c. for, Macnab, 3281.
Gelatinized nitro-glycerine, &c. for, Newton (*Nobel*), 4179.
Piles or batteries for firing mines, Lake (*Van Tenac*), 4206.
Mixing charred peat with nitro-glycerine for, Punshon, 4268.

**Bleaching fabrics, fibres, and yarns:**
Without the use of caustic lime, Holliday (*Schultz*), 499.
Yarn upon cops, Wirth (*Goehrung*), 1135.
Treating wild silks for, Abel (*Tessié du Motay*), 1305.
System of, Wirth (*Van Baerle*), 1382.
Saturating yarns, &c. with liquids in, Reid, 1811.
Tubular screw-apparatus for drying in, Walker, 1886.
Purifying and drawing off water for, Macdonald, 2343.
Treating jute, &c. with silicate of soda, Haas, 2371.
Silk and other animal fibres, Smith (*Tessié du Motay*) 2812.
Paste for vegetable fibres, Clark (*Coinsin-Bordat*), 2918.
Revolving cages inside keirs, &c. for, Copley & Jennings, 3141.
Vessels for holding chlorine and liberating same for, Adams, [3237.
Leading yarns to & arranging squeezing rollers in, Reid, 3319.
Silks and wools, Smith (*Tessié du Motay*), 3660.
Constructing and arranging self-acting kiers, Fletcher, 3954.

**Bleaching paper-pulp:**
By sulphurous acid gas, Rocco, 1155.
System of, Wirth (*Van Baerle*), 1382.
Jute, gunny, manilla, &c. for white paper, Lake (*Dubuisson*), [1533.
Paste for, Clark (*Coinsin-Bordat*), 2918.

**Bleaching powder.** *See* Lime.

**Blind (embossing letters for the).** *See* Embossing.

**Blinds (window).** *See* Window-blinds.

**Blocking hats.** *See* Hats.

**Blocks for printing & block printing.** *See* Printing.

**Blood-manure.** *See* Manure.

**Blotting-pads:**
Combined blotting-pad, paper-weight, and writing case, Hen- [derson (*Legrand*), 3052.
Opening and closing arrangements for, Quin, 4403.

**Blowing engines; fans; punkahs; bellows:**
Fans for drying yarns in sizing, &c. machines, Lancaster, 250.
Air compressing or blowing engine, Stevenson, 387.
Actuating ventilating fans, Richardson & Ball, 564.
Fans, Reynolds, 724.
Rotary, Cooke, 839.
Ventilating fans for mines, Knott & Rudd, 916.
Forcing air or gases for blast purposes, Cook, 938.
Rotary, Cooke, 950.
Blowing engine, Brotherhood, 999.
Fans for card-grinding and other purposes, Dronsfield, 1030.
Rotary fan blower, Radford, 1173.
New type of rotary blast engine, Barlow (*Deck*), 1277.
Fans, Braun, 1278.
Engine for working fans and blowers, Brakell, 1393.
Compressing air for blowing purposes, West, 1401.
Working fans for heating and ventilating, Spurrier, 1516.
Arranging bellows and fans for ventilating, Corfield, 1572.

**Blowing engines; fans, &c.—*cont.***
Fan blowers for portable forges, Gubbins, 1658.
Auxiliary bellows for American organs, Rousseau, 1755.
Friction gear for driving fan shafts, McLachlan, 1761.
Actuating rotating fans and wheels, Maskelyne & Clarke, 1804.
Direct-acting pump, Wallace, 1816.
Working punkahs, &c. in finishing fabrics, Pollock, 1833.
Rotary blowers, Johnson (*Lämmerhirt*), 1867.
Arranging fans for smoke consumers, Gedge (*Dubois*), 2175.
New type of reciprocating and circular, Higginson, 2463.
Rotary air blower for furnaces, &c., Patrick, 2499.
Bag or bellows for pneumatic signals, Canning & Joel, 2518.
Rotary, for compressing, &c., fluids, Johnson (*Disston*) 2605.
Working fans for blowing air, Clark (*Moore*), 2804.
Combined rotary engine and blower, Weyhe, 3019.
Compounding non-condensing engines for, Crosland, 3209.
Band valves for blowing engines, King (*Chisholm*), 3297.
For ventilating mines, &c., Rammell, 3587.
Rotary blower, Vacherot, 3828.
American organ bellows, Morgan-Brown (*Rousseau*), 3922.
Steam blowers for furnaces, &c., Cornforth & others, 3944.
Cooling and lubricating rotary, Eaglesham & Rigg, 3969.
Bellows for expanding raft-boats, Dunn, 4006.
Actuating fans for blowing boiler fires, Atterbury & Boyle, 4210.
Using rotary engines as, Weyhe, 4298.
Fans for grain cleaners, Morgan-Brown (*Rose & Rose*), 4338.
Gas-engine for driving fans, Alexander (*De Bisschop*), 4342.
Fans for forcing air, Gubbins, 4559.

**Blue-stone (treating Anglesea).** *See* Smelting.

**Boas.** *See* Muffs.

**Boat-building.** *See* Ship-building.

**Boats (lowering, &c.).** *See* Ships' boats.

**Boats (propelling).** *See* Propelling ships.

**Bobbin net and twist lace.** *See* Lace.

**Bobbins; spools; reels; cop-tubes:**
Yarn bobbins, Freir & Fairlie, 773.
Shuttle reels of sewing-machines, Blake & Moss, 863.
Steel bobbin tubes, Messrs. Sykes, 1107.
Nicking bobbins and placing thread in same, Bash, 1257.
Paper tubes for spinning machinery, Lund & others, 1372.
Portable reel for sewing-machines, Reid, 1500.
For roving frames, Bazley, 1769.
Making thread spools or reels, Haseltine (*Lyman*), 1781.
Casing, or substitute for wood and other reels, Pickard, 1842.
Securing, upon spindles and shuttle pegs, Crabtree, 2179.
Shuttle bobbins for gimp looms, Stone, 2222.
Compound for forming bobbins, Tice, 2275.
Making paper cop-tubes, Knott & others, 2331.
Connecting spindles and, in spinning & doubling, Shaw, 2570.
Spools for use in making fishing and other nets, Patrick, 2830.
For sewing-machine shuttles, Blake & Moss, 3520.
Making various kinds of spools or reels, Baker, 3567.
Making paper cop-tubes, Knott & Harrison, 3572.
Spool for sewing-machines, Spurin (*Thowless*), 3695.
For slubbing or roving frames, Oliver & Butterworth, 4190.

**Bogie-engines (steam).** *See* Steam-engines.

**Bogies.** *See* Railway and Tramway carriages.

**Boilers (miscellaneous):**
Water circulator for coppers and other, Collier & Holding, 19.
For hot-water apparatus and other uses, Ormson, 317.
Supplementary water heater for kitchen, Smith, 520.
Safety-valve and draw-off cock for domestic, Bailey, 539.
Stills for obtaining saccharine solutions, Manbré, 579.
For gas cooking apparatus, Peacock & Rudkin, 590.
Stove or fire-place for heating, Crichley, 859.
For hot-water heating apparatus; fixing same, Harlow, 1063.
Apparatus for heating water, Hilton, 1208.
System of petroleum burners for heating, Jacquet, 1380.
Tubular screw-apparatus acting as a, Walker, 1886.
For hot-water apparatus, Hughes (*Smith & Bates*), 2083.
Consuming smoke in, Gedge (*Dubois*), 2175.
Arranging ammonia, for use in ice-making, &c., Coughlin, 2413.
Forming kitchen, of coiled or curved pipes, &c., Sykes, 2554.
Saddle-boilers for warming buildings, Lumby, 2968.
Wash pot, low wine, and spirit stills, Dudgeon, 3037.
Saddle-boiler for heating churches, &c., McLaren, 3041.
Arranging, for warming buildings, carriages, &c., Amory, 3284.
Producing hot-water & steam in heaters, Lake (*Mershon*), 3387.
Saddle, oval, oblong, and square, Hartley & Sugden, 3511.
Self-contained open boiler or pan, Matthews, 3638.
Utilising waste heat from, for heating air, Maw, 3699.
Apparatus for boiling distillers' worts, Wilson, 3855.
Constructing and arranging self-acting kiers, Fletcher, 3954.
Arranging ammonia for ice-making, Wheeler (*Coughlin*), 4054
For warming buildings, Richardson, 4252.
For steam heating apparatus, Kidd, 4257.

**Boilers (miscellaneous)—*cont.***

Vertical rectangular, for heating buildings, Wright, 4419.
For distilling resins and essences, Bordone, 4491.
For hot-water apparatus, &c., Bordone, 4491.
For heating & circulating water; heater for same, Keith, 4506.
The "rapid circulator and fuel economiser," Keith, 4506.

**Boilers (steam-engine).** *See* Steam-boilers.

**Bolsters and steps.** *See* Bearings.

**Bolting flour.** *See* Sifting.

**Bolts and door fasteners.** *See* Locks.

**Bolts and pins:**

Locking-nuts of screw, Cunliffe, 238.
Feeding blanks for turning, worming, &c., Rogers, 300.
Stocks and dies for screwing, Gibson & Towell, 905.
Cutting and forging blank, Whittaker, 992.
Screwing and finishing, Heap, 1137.
Cutting threads of screw, Walton, 1388.
Shaping heads and sides of, Conradi (*Sack*), 1469.
Screw, with cavity, &c. in head, Tongue (*Cummings*), 1476.
Forming with recessed heads, Wells (*Johnson*), 1754.
Machine for heading, Davies, 1786.
Lock or jam nuts for screw, Wiles, 2210.
Securing nuts on through, of rock drills, Reynolds, 2287.
Shaping heads of; setting tools, Smith, 2353.
Cutting and chasing or screwing studs and, Smith, 2543.
Forging square headed, Smith & Woodrow, 2561.
Forging blank, Davies & others, 2586.
Cutting die threads for, Imray (*Boyd*), 2737.
For wedging rails on sleepers, Bonneville (*Legrand*), 2759.
For railway rails and chairs; securing same, Newman, 3384.
Making and hardening screw, Johnson (*Barba*), 3415.
Stud-bolts for composite railway wheels, Clark, 3519.
Locking screw-bolts; forming bolt heads, Carlile, 3736.
Screw-bolts for ship-building, Betteley, 3997.
Forming screw threads on, by rolling, Fairbairn, 4037.
Lathes for turning and screwing, Smith & Coventry, 4047.
Forming offsets on screw, Thompson (*Casin*), 4246.
Lock-washers for screw-bolts, King, 4406.
Fixing railway and such like, Lawrence, 4436.
Securing nuts on, Stewart, 4535.

**Bone; horn; ivory:**

Lathes for bone and ivory workers, Howarth & Howarth, 322.
Cutting, slicing, reducing, and pulverising, Bradford, 727.
Cutting or carving in ivory, Notton, 743.
Crushing or disintegrating, Milburn & Jackson, 933.
Producing ivory like castings, Wirth (*Kreittmayr*), 959.
Carbonising bones to obtain products, Nicholas, 1116.
Ivory strips for rules, &c., Johnson (*Hastings & Johnson*), 1249.
Lathes for turning ivory buttons, Spill, 1296.
Carbonising, Hall & Bainbridge, 1460.
Treating horn for manure, Johnson (*Lissagaray*), 1484.
Cutting buttons, bottle shields, counters, &c., Mincher, 2449.
Carving or reproducing patterns in ivory, Notton, 2791.
Rotary cutters for cutting and ornamenting, Clissold, 3190.
Gear wheels for sewing-machines, Blake & Moss, 3520.
Hollow wall or retort for charring, Lyttle, 3579.
Making buttons in imitation of, Hess (*Hess*), 3613.
Furnaces or kilns for carbonising, Johnson (*Huyard*), 3759.
Grinding bone for use in making pottery, Boulton, 4170.
Mottling and polishing vegetable ivory buttons, Hesse, 4197.

**Bone-ash.** *See* Lime.

**Bone-black.** *See* Charcoal.

**Bonnets and bonnet shapes.** *See* Hats.

**Book-cases.** *See* Furniture.

**Books; book-binding; portfolios; albums:**

Pocket-book fastening, Pendleton, 337.
Adjustable stand for holding, Bell, 565.
Using gold powder for metalling covers of, Deighton, 888.
Clip fastenings for note and other, Warner, 947.
Holding, cutting, gilding, and burnishing, Ritchie, 1034.
Applying calendars to covers of, Whiteman, 1129.
Cryptograph and pocket-book, Haseltine (*Norris*), 1163.
Adding pockets to inside of music portfolios, Watt, 1552.
Adjustable stand for, Johnson, 1777.
Compound for coating cloth for binding, Greening, 2039.
Binding and indexing ledgers, &c., Pettitt, 2795.
Pasting and covering devices for book-folding machines, Lake (*Chambers*), 2799.
Leatherized paper or cloth for covers of, Kellogg, 3139.
Combined table and print case or portfolio, Bunyard, 3285.
French vegetable leather for binding, Tongue (*Jolissaint-Vonèche & others*), 3290.
Wire-stitching machinery for, Tongue (*Thompson*), 3291.
Clasps or fastenings for albums, portfolios and, Faris, 3710.

**Books; book-binding, &c.—*cont.***

Securing & temporarily binding papers, Lock & Chapman, 3901.
Rest or support for, Wheeler, 4022.
Applying electric briquets or lighters to pocket-books, Lake (*Van Tenac*), 4281.
Substitute for photographic albums, Browne, 4290.
Portfolios, Quin, 4403.

**Boots and shoes; coverings for the feet:**

Attaching buttons to, Bousfield (*Heaton*), 18.
Fastening for attaching buttons to, Feldman, 68.
Guards or shields for, to prevent splashing, Rowley, 97.
Applying guards to goloshes and clogs, Rowley, 97.
Fastenings for, Jenkinson, 98.
Shaping, channelling, & feathering soles, Gardner (*Blake*), 204.
Templates for cutting, &c. soles, Gardner (*Blake*), 204.
Machine for blocking the uppers of, Nardi, 216.
Last and stretching apparatus for, Cramp, 225.
Combined lace-boot, legging and gaiter, Kerby, 274.
Making, to impart heat, electricity, &c. to feet, Wetton, 304.
Attaching buttons to, Read, 379.
Household "help" for cleaning, Lake (*Bogle*), 395.
Rubber or elastic, and lasts for same, Benson (*Williams*), 487.
Clips, slides, or fastenings for, Jones, 596.
Cutting leather, &c. for stiffeners, Lake (*Boivin*), 615.
Nails for, Edmondson & Wadsworth, 657.
Pegging machines, Wirth (*Kuhlmann*), 679.
Nails for; hole making tool for same, Derigny & Tallon, 717.
Artificial leather or cloth for, Block, 718.
Edge tips or toe caps for, Gardner (*Mayne*), 889.
Attaching buttons to, Marsden, 985.
Making and fastening tab pieces or straps of, Draper, 1018.
Cutting and forming uppers of, from one piece, Okey, 1215.
Quarters, shanks, and metallic shank pieces for, Heath, 1228.
Portable waterproof elastic covering for, Horrex, 1299.
Lacing; imitation lace and button boots, Nash, 1285.
Fastening for shoes, West, 1287.
Convertible machine for cleaning, Simon, 1293.
Crispin machine for sewing, Greenwood, and others, 1373.
Brushing and polishing machines, Southall, 1411.
Expanding last for use in cleaning, Southall, 1411.
Applying copper to soles of, and waterproofing, Warren, 1428.
Hooks for boot sewing-machines, Keats & Greenwood, 1768.
Button hole casings or linings for, Lake (*Balmforth*), 1822.
Preparing threads for shoemakers' use, Forster, 1989.
Composition for softening and waterproofing, Wilkins, 2012.
Snap fastenings or studs for ladies', Greaves, 2019.
Felt slippers, Bailey, 2048.
Recovering leather for use in making, De Montoison, 2116.
Weaving elastic boot webs, France & Bradsworth, 2163.
Forming lasts in four pieces ("Huard last"), Huard, 2194.
Dressing or preparing leather for, Tombs, 2333.
Cutting and shaping soles and heels of, Jackson, 2380.
Forming elastic or spring sides of, Pike, 2552.
Ornamental material for slippers and ladies', Cadman, 2389.
Machine for cleaning, Brewer (*Dumont-Catelain*), 2657.
Casting clinker headed nails for, Maddock, 2757.
Cutting out; dispensing with side springs, Soper, 2777.
Strap and buckle fastener for, Soper, 2777.
Shoe or golosh for swimming and bathing, Rowley, 2794.
Uppers for, with elastic sides, Mabane & English, 2889.
Fastening for, Haddan, 2836.
Attaching, trimming, &c heels, Morgan-Brown (*Brooks*), 2888.
Fitting and pasting the gussets, &c. of, Oldershaw, 2921.
With warming apparatus ("calori-chaussure"), Gedge (*Nordain & Co.*), 2988.
Slippers and like coverings, McLintock & McLintock, 3045.
Leatherized material for uppers of slippers and, Kellogg, 3139.
Hydropathic boots for gout, Dale, 3168.
Forming shoemakers' awls, Clark (*Williams*), 3231.
Machine for sewing, Johnson (*Goodyear*), 3290.
French vegetable leather for slippers and soles of, Tongue (*Jolissaint-Vonèche & others*), 3290.
Shoe bills or sprigs, Southwood, 3439.
Forming clog blocks and clog soles, Robinson & Smith, 3442.
Leather tabs or loops for, Turner, 3476.
Adjustable boot-last or tree, Savage, 3496.
Stud fastener for boots and shoes, Read, 3525.
Paper over-boots for railway travelling, Loder, 3531.
Revolving brush machine for cleaning, Somerville, 3531.
Compound heels and soles for, Wise (*Schönacker*), 3583.
Dyed raw hide protector for uppers of, Morgan-Brown (*National Boot & Shoe Tip Co.*), 3607.
Felted fabric for slippers, tops, &c., Vickers & Freestone, 3645.
Seamless felt uppers, tops, &c. for, Vickers & Freestone, 3645.
Screws for securing soles on; and driving same, Angst, 3662.
Boot and shoe wood pegging apparatus, Angst, 3661.
Applying various sized awls to one handle, Bartlett & Johnson, 4068.
Boot-trees, Blakey, 4142.
Making composite, by moulding in lieu of sewing, &c., Clarkson, 4227.
Forming composite soles and heels for, Clarkson, 4227.
Machine for sewing, Mills, 4279.
Fastener or open lacer for, Haddan (*Reeves & Travis*), 4273.

**Boots and shoes; coverings for the feet—*cont.***
Fastening, by a bowline strap & runner buckle, Harris, 4432.
Machine for cleaning and polishing, Kent, 4439.
Fitting with wheels to serve as skates, Keel, 4509.
Buttons for and attaching same to, Stoneham, 4558.

**Borax.** *See* Alkalies.

**Boring, drilling, and rifling metals:**
Drilling out the body of rivets, Lake (*Bray*), 100.
Rails, cylinders, valves, columns, pipes, &c., Enoch, 190.
Reamer for, Mills (*Siprell*), 246.
Boiler and other shell drilling machines, Allan, 297.
Drill braces, Wright, 754.
Holding drills in machines, Johnson (*Van Haagen*), 912.
Drilling brace, Bowker, 958.
Making cutting tools for use in, Lynam, 1192.
Drilling holes in carding-engine flats, Leigh & Leigh, 1271.
Hand or portable drilling machines, Nelson, 1561.
Adjusting spindles of multiple drills, Welch, 1778.
Forming recesses in screw heads, Lake (*Sloan*), 1849.
Cylinders of rotary engines, Johnson (*Lämmerhirt*), 1867.
Supporting ratchet drilling braces, King, 1903.
Multiple drills; fixing tools; driving same, Buckton & Wicksteed, 2039.
Drilling girders in situ, Buckton & Wicksteed, 2039.
Compound machine for, Dodge, 2720.
Rifling fire-arms, Bousfield (*Rodolphe*), 2957.
System of spiral rifling for guns and small-arms, Clark, 3038.
Hand apparatus and tools for, Beynon, 3113.
Ratchet-braces, Comber, 3189.
Constructing arms of radial drills, Beverley, 3694.
Boring machine standards or upright slides, Beverley, 3694.
Holes in screw nuts, Whitley, 3942.
And countersinking holes in boiler shells, Allan, 4038.
Drilling combs, gills, hackles, Harding & Harding, 4178.
Drilling fallers, Harding & Harding, 4178.
Portable apparatus for, driven by air, &c., Lawrence, 4398.
Radial arm drilling machines, Lowry, 4540.
Fluting or grooving barrels of sporting guns, Duncan, 4542.
Hammer mechanism, Duncan, 4542.

**Boring and drilling rock or stone:**
Rotating drilling or boring tool, Wise (*Levet*), 3.
Operating valves of machines for, Wise (*Levet*), 3.
Rotary machinery for cutting or, Gay, 160.
Rock reamers for use in blasting, Mills (*Siprell*), 246.
Saws for percussive rock drills, Payton & Holmes, 348.
Compressing air for working rock drills, Stevenson, 387.
Rock drill engine, Haseltine (*Winchester & Phelps*), 485.
Actuating rock drills, Richardson & Ball, 564.
Working percussive rock drills, Beaumont, 829.
Percussive machine for; tripod stand, Ellis, 900.
Holding drills in machines, Johnson (*Van Haagen*), 912.
Cylinders for rock drills, Flower, 1101.
Working rotary drills directly from engine, Gulland, 1251.
Apparatus for removing submarine rocks, Alley, 1522.
Working, supporting, &c. rotary rock drills, Walker, 1657.
Working percussive rock drills, Brown (*Burleigh*), 1766.
Engine for, and feeding forward cylinder in, Edwards, 2013.
Attaching drill to piston; tripod supports, Edwards, 2013.
Operating drill pistons without valves, Reynolds, 2287.
Percussive rock drills and legs for same, Reynolds, 2287.
Pneumatic machine for, Sholl, 2524.
Working rock, stone, coal, &c. drills by hand, Pyle, 2758.
Machinery for rock tunnelling & shaft sinking, Penrice, 2999.
Cutting, "shearing," or quarrying stone or rock, Adams, 3057.
Arranging compressed air machinery for, Cowper, 3233.
Drilling holes in coal, stone, &c., for blasting, Macnab, 3281.
Machines for, at any desired angle, Terrey, 3322.
Multiple friction feed-gear for drills, Terrey, 3322.
Making bore holes, Bosworth, 3473.
Inserting diamonds in hollow drills, Lake (*Branch*), 3677.
Tunnel driving machine, Beaumont, 4166.
Percussive rock drills, Blake (*Ingersoll*), 4207.
Explosive gas-engine for, Ellerbeck & Syers, 4326.
Drilling apparatus for use in mines, Dingley & Ackers, 4356.

**Boring and drilling wood:**
Treadle-apparatus for operating drills, Clark (*Dows*), 544.
Holding drills in machines, Johnson (*Van Haagen*), 912.
Hand or portable drilling machines, Nelson, 1561.
In making fire-lighters, Pinchbeck, 1096.
Holes in thread spools or reels, Haseltine (*Lyman*), 1781.
Fixing tools; break and feed gear, Buckton & Wicksteed, 2039.
Slotted holes in fence posts, McGillivray, 2246.
Compound machine for, Dodge, 2720.
Hand apparatus and tools for, Beynon, 3113.
Mounting and actuating drills, Johnson (*Blake*), 3678.
Boring bits for mortising machines, Carter, 4195.

**Boring and sinking wells.** *See* Wells.

**Bottles; decanters; bidons; bottling & decanting:**
Instrument for opening internal stoppered, Waugh, 15.
Rings or heads of, for gaseous waters, Bowman, 53.
Tap for filling and emptying, Howitt & others, 103.
Cleansing decanters and other bottles, Hope-Vere, 183.
Supplying carbonic acid gas to, Gillman & Spencer, 234.
Bottling beer charged with gas, Gillman & Spencer, 234.
Making aperture and fitting tap in, Jones & Davies, 248.
Substitute for carboys, for storing, &c. chemicals, Weare, 252.
Bidons and drinking bottles or flasks, Pieri & Smith, 342.
Cleansing or washing, Wilson, 474.
Filling and corking, Haseltine (*Bradford & Ferry*), 484.
Bottling aërated or gaseous liquids, Vallet, 490.
Instrument for opening internal stoppered, Vallet, 490.
Filling, with soda-water, &c., & drawing off same, Howat, 580.
For aërated liquids, &c., and filling same, Tallis & Cave, 788.
Furnaces for glass bottle making, Paul & Sanderson, 898.
Opening & drawing contents from aërated water, Smith, 920.
Feeding bottle valves and tubes, Vaughan (*Brière*), 1004.
Charging with gaseous or effervescing liquids, Waugh, 1041.
Instrument for opening internal stoppered, Waugh, 1041.
Bottle brushing apparatus, Wilson, 1299.
Crates for holding wine and other, Wilson, 1329.
Cases for packing, Paris & Adam, 1346.
Bottling aërated or gaseous liquids, Chapman & Fox, 1347.
Duplex or manifold bottling machine, Chapman & Fox, 1347.
Machine for washing, brushing, and rinsing, Macdonnell, 1454.
Protecting decanters and, Bonneville (*Perlau*), 1514.
Taps or valves for decanting, Goddard, 1581.
To facilitate discharge of liquids, Brooks, 1593.
For aërated liquids, Sutcliffe & Fewings, 1598.
Bottling non-aërated liquids, Edwards, 1616.
Force pump for use in bottling liquors, Edwards, 1616.
Constructing flanges, &c. on neck of, Netherwood & Shaw, 1859.
Monchovaut pump feeding bottle, Lake (*Monchovaut*), 1899.
Skimming froth and preventing gargling in pouring, Gill, 2036.
Valve stopper for decanting aerated liquids, Cole, 2079.
For holding poisons and inculcating caution in use, Johnson (*Caterson*), 2218.
Pouring or drawing oil or other liquids from, Randall, 2252.
Of toughened glass for preserving, &c. food, De la Perrelle (*Guérin*), 2437.
Filling and drawing off aërated liquids from, Thom, 2446.
Cutting bottle tops and shields in bone, &c., Mincher, 2449.
Regulator for bottling trays to prevent waste, Wild, 2531.
Pump and fittings for liquid smelling, Plessner, 2534.
Machines for drying, filling, &c., Macdonell, 2551.
Material for making common glass, Heinzerling, 2669.
Bottling beer, &c. under pressure, Gillman & Spencer, 2702.
Withdrawing liquids from, at pressure, Elias, 2776.
Valve stopper for drawing off contents, Groubman, 2805.
Charging, with gaseous liquids, Waugh, 2808.
Filling, with aërated liquids, Lingard, 2835.
Bottling machine for ales, wines, &c., Mason & Anderson, 2904.
Fabric for covering, in imitation of basket-work, Paton, 3119.
Constructing necks of, for internal stoppers, Fox, 3311.
Forming earthenware, Murray & Crighton, 3400.
For aërated liquids; opener for same, Vaughan, 3538.
Feeding bottle regulating device, Messrs. Phelps, 3568.
For aërated liquids, Sutcliffe & Fewings, 3751.
Kiln or tower for annealing glass, Cannington & Shaw, 3906.
Stands or cases for, for counters and other places, Ross, 4087.
Crates or frames for holding, of various sizes, Keith, 4093.
With handles & jackets for chemicals, &c., Fournereau, 4104.
Drying or partially drying earthenware, Jackson, 4219.
Bottling wine, beer, spirits, &c., Rendle, 4224.
Tap or cap for bottling, Saul, 4358.
Protecting carboys and, for containing or transporting oils, varnishes, spirits, &c., Ryland, 4368.
Opening and closing liqueur stands, Quin, 4403.
Cleaning and filling, Warrington & Harwood, 4422.
Implement for opening sheet metal, Helwig & Cox, 4455.

**Bottle-stoppers; closing and capsuling bottles:**
Closing bottles containing gaseous liquids, Waugh, 15.
External, for soda-water, &c., Evans & Williams, 22.
Internal elongated, for gaseous liquids, Bowman, 53.
Tap, fitted in neck of bottle, Howitt & others, 103.
Plug or tap stopper for aërated liquids, Jones & Davies, 248.
Internal, for aërated and other liquids, Aylesbury, 262.
Internal pipe clay, for aërated waters, Wadsworth, 418.
Corking apparatus, Haseltine (*Bradford & Ferry*), 484.
Internal, for aërated or gaseous liquids, Vallet, 490.
Instrument for placing washers in position, Vallet, 490.
Closing bottles containing soda-water, &c., Howat, 580.
With sliding wing pieces and removing same, Thompson, 756.
Internal stopper and bottle combined, Tallis & Cave, 788.
India rubber caps for feeding or other bottles, Pare, 800.
With eccentrics for exerting pressure on same, Gori, 852.
Combined sphere and hollow stopper or closer, Smith, 968.
Capsuling machine for champagne, &c., Heurtier, 987.
Capsuling machines, O'Brien, 1016.
Internal elastic ball, for gaseous liquids, Waugh, 1041.
Internal elastic stopper, Clayton & Wilkinson, 1141.
Cutting cork stoppers, Hald (*Boethius*), 1390.
Compound corks or, Tongue (*Montaugé & Brandely*), 1477

**Bottle-stoppers, &c.—*cont.***

To facilitate discharge of liquids, Brooks, 1598.
For aërated liquids, Sutcliffe & Fewings, 1598.
Capsuling apparatus, Martin, 1608.
Cap arrangement of, Netherwood & Shaw, 1859.
Expanding cap or cover with expanding ring, Thompson, 1869.
Internal, for fermented and other liquors, Gill, 2036.
Hollow plug and valve for aërated liquids, Cole, 2079.
Expanding internal, Farjon, 2115.
Cap or cover with inclines and clips, Thompson, 2217.
External, with securing clip or strap, Rylands, 2338.
Cap or cover stopper, Thompson, 2415.
For preserved meat jars & bottles, De la Perrelle (*Guérin*), 2437.
Cap or stopper mounts for smelling bottles, &c., Plessner, 2534.
Internal; purifying and protecting same, Catlow & Hoyle, 2547.
Automatic corking machine, Macdonell, 2551.
Self-acting, &c. for chemists, surgeons, and others, Elias, 2776.
Internal valve stopper, Groubman, 2805.
Hollow elastic internal ball, Waugh, 2808.
Solid elastic internal ball; inserting same, Waugh, 2808.
Plug, for ingress and egress of aërated waters, Lingard, 2835.
Fabric for covering, Paton, 3119.
Capsuling apparatus, Schreiber, 3246.
Self-sealing, for chemical bottles, Soley (*Collinson*), 3260.
Tapered internal plug for elastic fluids, Monckton, 3307.
Internal; and attaching same to bottle neck, Fox, 3311.
Internal ball, for effervescing liquids, Gibbs, 3332.
External, with loop for securing, &c., Halsey (*O'Brien*), 3464.
Internal ball, for aërated liquids, Vaughan, 3538.
Capsuling mechanism or machine, Campbell, 3639.
Or covers with mechanical actions for fixing, Rylands, 3731.
Cap or cover for retaining internal stoppers, Vallet, 3734.
Internal, for aërated liquids, Sutcliffe & Fewings, 3751.
External hinged stopple & securing same, Allatt & Patton, 3931.
Adhesive seals for, Kleinau (*Teysonnière*), 3946.
Tube stoppers for ingress or egress of liquids, Brown, 4005.
Hinged metal cover with porcelain stopper, Grauel, 4352.
Tap or bottle cap, Saul, 4358.
Yoke and lever external, Clark (*De Quillfeldt & Hutter*), 4438.

**Bows (neck and dress).** *See* Neckties.

**Boxes; cases; chests; caskets:**

Paper material for making, Gandy, 52.
Cases for vessels holding liquids, Gee, 111.
Cartridge boxes, Lee, 131.
For shipping minerals, Connell, 302.
Metallic, for holding pens and small articles, Myers, 570.
Suspending, for damageable goods, in equipoise, Chomel, 659.
Employing metallic cases for packing hops, Tebbs, 692.
For tooth, plate, and such like powders, Harrison, 749.
Coverings for tea-chests, Lipman, 781.
Combined, for pipes, tobacco, cigars, matches, &c., Banford, 946.
Self-locking, for cash, papers, &c., Watson & Anderson, 962.
Plates for securing lids to packing and other, Fullerton, 971.
Paper, Haseltine (*Cleveland Paper-box Machine Co.*), 1008.
For matches and other articles, Burchett, 1011.
Handles for chests, Butler, 1060.
Machine for forming boxes of pulp, Wheeler & Jerome, 1080.
Paper, cardboard, or millboard, Shaw (*Kettle*), 1166.
Printing metals for tin, Barclay & Fry (*Baber*), 1168.
Registering the locking, &c. of fare-collecting, Kaye, 1295.
Cases for packing bottles and jars, Paris & Adam, 1346.
Sample, for carrying liquids, Chevallier, 1520.
Material for lining packing cases, Turner & Stoneham, 1673.
Combining glass, &c. for making work-boxes, D'Humy, 1710.
Joining edges of cash-boxes, Caddick, 2164.
Decorating metallic, with looking glass, Burton, 2208.
Safety travelling and other, for cash, valuables, &c., Ellis, 2369.
Life saving chest for seamen and others, Gade, 2498.
Combined mattress & box or chest for saving life, Gade, 2689.
For containing or holding matches or fusees, Jarvey, 2703.
Calendars for cigar-cases and match-boxes, Fisalthaler, 2868.
Biscuit boxes; Green, 2896.
Needle case for sewing-machines, Bishop (*Bishop*), 2920.
For canteens used in campaigning, Gedge (*Manens*), 2924.
Snuff-box, Orphin, 3012.
Seamless sheet metal boxes & cases, Thacker (*Martyn*), 3017.
Metallic tobacco-box, Bonneville (*Pichon*), 3018.
Combined box and garment for saving life, Schönrock, 3086.
Forming colored impressions on metal sheets for, Guéneux & Normand, 3185.
Dressing cases and other, Perkins & Clark, 3186.
Jewel, dressing, and cigar cases in book form, Van Dyk, 3212.
Work-boxes, medicine-boxes, &c. in book form, Van Dyk, 3212.
Fixing and securing articles in, for transport, Turner, 3222.
French vegetable leather for caskets, Tongue (*Jolissaint-Vonèche & others*), 3290.
Portable fire-proof caskets, Hosmer (*Shepard*), 3469.
For cigarette papers, needles, pins, &c., Jensen (*Kœnig*), 3563.
Money collecting and ticket-distributing box, Semple, 3888.
Cases for bottles, samples, &c. and advertising, Ross, 4067.
Ornamenting fancy wood-boxes, Brown, 4094.
Securing cases against thieves, Gedge (*Pérard*), 4214.
Combined case, easel, seat, and table for artists, Whyte, 4251.

**Boxes; cases; chests; caskets—*cont.***

Or case for exhibiting photographs, &c., Browne, 4293.
Cramps for securing lids or sides of metal, Ehrhardt, 4374.
Dispatch-boxes and cases for plate, Quin, 4463.
For holding postage and other stamps, Ledger (*Drewell*), 4491.
Implement for opening sheet metal, Helwig & Cox, 4553.
For preserved meats, provisions, &c., Groom, 4543.

**Box-irons.** *See* Ironing.

**Bracelets.** *See* Jewellery.

**Braces or suspenders:**

Buckle or clasp for, Weldon, 77.
Fastening for, Pendleton, 337.
Tubular tab plates for, Parker (*Fisk*), 1246.
Lever buckles for, Eyland, 3472.
Lever buckles for, Harrison & Priestland, 3667.
Back part of brace fittings, Halladay, 4380.

**Brackets; consoles:**

Folding, or "orderlies," Madden, 944.
Combining glass, &c. for casing, D'Humy, 1710.
For fixing scaffolding and raising material, Yeadon, 1967.
For attaching to feet for ascending poles, Yeadon, 1967.

**Brackets (gas).** *See* Gas-brackets.

**Braid.** *See* Trimmings.

**Bran:**

Grinding, and collecting powder for "dust food," Hyatt, 2307.
Converting, into caramel, Hyatt, 2307.

**Bread; biscuits:**

Ingredients for making, Johnson (*Huyttens*), 445.
Bakers' ovens, Jensen (*Dührkop*), 904.
Using a decoction of tea, &c. in making biscuits, Hart, 1218.
Combining meat extract with biscuits, Curlender, 1378.
Using carbonic acid gas from breweries for, Walker, 1996.
Aerotherm portable oven, Bonneville (*Lesobre*), 1937.
Using flour of maize in making, Clark (*Chiozza*), 2067.
Magnetic biscuits and breads, Darlow & Fairfax, 2102.
Making "iron wheat" for obtaining medicinal, Hyatt, 2307.
Aromatizing dry powdered, Hyatt, 2307.
Grinding, and collecting powder for "dust food," Hyatt, 2307.
Mechanical dough kneading trough, Heinz, 2424.
Making biscuits from "germ meal," Muir, 2560.
Cutting out or shaping "soft goods," Mitchell, 2655.
Biscuit boxes, Green, 2896.
Preserving bread for travellers, &c., Tamet (*Mouries*), 3041.
Using a decoction of tea, &c. in making biscuits, Hart, 3434.
Machinery for making biscuits, Crosby, 3644.
Printing or stamping and cutting out biscuits, Crosby, 3644.
Dietetic biscuits and biscuit powder, Morfit, 3938.
Kneading, &c. dough, Pfleiderer (*Freyburger*), 4116.
Producing "meat-bread," Imray (*Armengaud*), 4366.

**Breakers or water-casks.** *See* Casks.

**Breaking & scutching flax.** *See* Spinning (batting).

**Breaking down coal in mines.** *See* Mining.

**Breaking in colts.** *See* Harness.

**Breaking stone.** *See* Stone.

**Breaking up ice.** *See* Ice-breakers.

**Breaks for gun carriages.** *See* Fire-arms.

**Breaks for machinery.** *See also* Stop-motions:

For hydraulic lifts when lowering, Casson, 123.
For warehouse hoists or cranes, Barker, 432.
For sewing and other light machinery, Clark (*Dows*), 544.
Wheel & wedge device for arresting motion, &c., Wright, 754.
For mine or hoist cages, Vivian & Blackburn, 891.
Disc breaks for hoisting machines, &c., Harfield, 918.
For the steering wheels of vessels, Ittmann (*Coffin*), 1130.
For fuel moulding machines, Kinsey, 1442.
Detachable fly wheels in lieu of, Goubet & Monrocq, 1530.
Stopping warp beams, Ashworth & Ashworth, 1615.
For looms, Ziffer, 1730.
For building hoists or elevators, Newton (*Andrews*), 1925.
For looms, Singleton, 2176.
Stopping baskets of centrifugal machines, Shears, 2192.
For crabs, winches, &c., Crossley & Crossley, 2408.
For lifts and similar purposes, Clark (*Mason*), 2478.
For sewing and other light machines, West, 2511.
System of coils, &c. for arresting motion, Stalkartt, 2631.
Mine and hoist cages, Mills (*Lobotte*), 3011.
For lifting and lowering machinery, Cherry, 3053.
For "double beat" looms, Bousfield (*Bigelow*), 3124.
Vacuum break apparatus for cranes, &c., Smith, 3125.

## Breaks for machinery—*cont.*

For window-cleaning apparatus, &c., Kennedy, 3347.
For boat-lowering apparatus, Alexander (*Ferguson*), 3390.
For differential pulleys, Gough & Altree, 3470.
Safety apparatus for lifts or hoists, Stannah, 3748.
Exhaust and supply valves for steam breaks, Pa sfield, 3858.
For sewing and other light machinery, Lake (*Manson*), 3869.
For sewing-machines, Clark (*Febvre & others*), 4147.
For looms, Singleton, 4315.
For mine cages, Armstrong, 4364.
For mine cages and elevators, Clark (*Carlile & Elliott*), 4425.
Helical, for portable lowering apparatus, Holthausen, 4481.

## Breaks for railways, tram-cars, and road-carriages:

Continuous, with shoes for pressing on rails, Foster, 10.
Arranging and operating pneumatic railway, Clark, 80.
Automatic, for perambulators, Staniland, 134.
Continuous, with shoes, &c. pressing on rails, Joliot, 204.
Working continuous railway, Savage, 271.
Working automatic railway, Burdess, 329.
Actuating pneumatic railway, Steel, 333.
Coupling and working continuous railway, Temple, 391.
Constructing, arranging, and working, Stokes, 446.
Working railway, by electricity and magnetism, Laycock, 478.
Diminishing friction in screw railway, Olpherts, 560.
Pneumatic continuous railway, Steel, 623.
Self-acting railway, Caswell, 632.
Working continuous railway, Imray (*Heberlein*), 676.
Flexible strap railway, Imray (*Heberlein*), 676.
Operating railway, Burdess, 753.
Wheel and wedge device, Wright, 754.
Electric railway, Wise (*Masui*), 792.
Automatic pneumatic, when trains separate, Smith, 875.
Signalling and registering apparatus for, Smith, 875.
Pneumatic continuous railway, Smith, 875.
Automatic device for applying, Owen, 960.
Arranging and actuating railway, Bland, 978.
Continuous railway; method of applying same, Hunt, 982.
Arranging break blocks, Johnson (*Bañolas & Carlier*), 1023.
Continuous steam railway, Hoult & Hoult, 1105.
Lever, for road vehicles, Morgan-Brown (*Maitre*), 1110.
For "post and rail," &c., rolling stock, Haddan, 1198.
Operating by momentum of trains Blades, 1203.
Actuating continuous railway, Puskás (*Schindler*), 1218.
Actuating continuous railway, Clapp, 1221.
Working continuous railway, Stokes, 1258.
Automatic when trains separate, &c., Turner, 1263.
Continuous railway, Clarke, 1320.
Continuous railway, Trentanove & Verdie, 1355.
Actuating continuous railway, Money, 1363.
Continuous railway, Olivier, 1470.
Continuous, Knoblauch (*Zimmermann & Knoblauch*), 1540.
For tricycles, manupede carriages, &c., Bodel & others, 1559.
Coupling chains or rods of railway, Stevens, 1612.
Working, &c. railway and tram-car, Robinson & Kendall, 1628.
Variable pressure automatic, Alexander (*Barker*), 1633.
Actuating coutinuous, by water pressure, Money, 1645.
Break-blocks for railways, Steel, 1763.
Pneumatic railway, White, 1826.
Coupling, working, and applying continuous, Bolitho, 1931.
Vacuum and pressure break apparatus, Bolitho, 1931.
Steam tram-car and actuating same, Buret de Longagne, 2107.
For steam tram-cars and operating same, Barclay, 2201.
Hanging blocks of and operating railway, Burdess, 2224.
Operating pneumatic railway, Westinghouse, 2405.
Working railway, by exhaust or vacuum, Sanders, 2425.
For road vehicles, operated by the horse, Richards, 2582.
For bicycles, Meyer, 2710.
Compressed air breaks for railways, Steel, 2721.
Compound lever, for tram-cars, Morgan-Brown (*Gear*), 2779.
Working railway, from a distance, Dawber, 2846.
Self-acting railway, and when trains separate, Dawber, 2846.
Pneumatic railway; closing pipe valves of same, Knapp, 2861.
For bicycles, Carter, 2893.
Lever, for railway coaches, Edwards, 2906.
Applying railway break blocks, Edwards, 3091.
Stopping rail & tramway carriages by lifting driving wheels, [Boden & Whitehurst, 3092.
Flexible pump or exhauster for vacuum breaks, Smith, 3125.
Levers for shoes of & ejector for vacuum breaks, Smith, 3125.
Indicating breakage, &c. of air-pipes, Smith, 3125.
Working pneumatic and automatic railway, Allen, 3127.
Applying skids to railway rails and wheels, Percy, 3214.
Self-acting railway, when trains separate, Percy, 3214.
Applying skids to railway rails, Bland, 3242.
Self-acting, when trains separate, Bland, 3242.
Single and continuous railway; working same, Glossop, 3277.
Steam-break for locking engine cranks, Glossop, 3277.
Coupling and working continuous railway, Temple, 3302.
Skids to bear on ground for omnibuses, &c., Percy, 3393.
For bicycles with a pair of cones, Aves, 3485.
Continuous railway & tramway; working, &c. same, Allan, 3532.
Safety, for perambulators, invalid carriages, &c., Ingrey, 3592.
Continuous railway; operating same, Ward, 3617.
Self-acting power, Spence (*Widdifield*), 4060.

## Breaks for railways, &c.—*cont.*

Composite blocks for railways and tramways, Miller, 4089.
Gripping shoe for railways; working same, Handyside, 4114.
For ground wheels of portable farm steam-engines, Fox, 4245.
Elastic break-blocks and fitting same, Scott, 4297
For railways, by stopping rotation of axles, Foucard (*Leturmy*) [4301.
Controlling application of break-power, Lawrence, 4435.
Regulating break-pressure of carts, Barrett, 4511.

## Breakwaters; sea and river walls; embankments:

Compound material for & forming sea & river walls, Pope, 159.
Floating or oscillating, Saunders, 1015.
Wave shield for top of, Mather & Heywood, 1877.
Reclaiming land from sea, Cooke & Thompson, 2196.
Forming breakwaters in sandbanks, Cooke & Thompson, 2196.

## Breast-plates. *See* Shields.

## Breech-loading fire-arms. *See* Fire-arms.

## Breeding oysters. *See* Oysters.

## Brewing; treating malt liquors:

Maturing, &c. malt liquors by sunlight, Shand, 213.
Treating and maturing beer, Gillman & Spencer, 234.
Refrigerators; cooling fermenting rooms, Weatherby, 351.
Preparing grain, &c. for, Johnson (*Adamson*), 381.
Saccharine matter free from fatty matter for, Manbré, 579.
Lining squares, vats, and troughs with glass, Cutler, 601.
Preventing ale or beer becoming flat or dead in casks, Lake [(*Shepard & Seaman*), 761.
Regulator for supplying liquids with gas in breweries, Lake [(*Shepard & Seaman*), 761.
Cooling and regulating flow of liquids in, Gooch, 775.
Producing glucose or dextrine for, Johnson, 810.
Mashing malt, Lessware, 1083.
Cooling wort by mixture of air and water, Turnock, 1530.
Producing a "speciality malt sugar," Manbré, 1724.
Reducing and liquefying cane sugar, &c. for, Richardson, 1774.
Extracting wort, &c. from spent hops, Brown, 1806.
Building, tubular screw-apparatus, and plant, Walker, 1886.
Attemperating, fermenting, &c. worts, Walker, 1886.
Utilising, &c. carbonic acid gas generated in, Walker, 1886.
Barm skimmer for fermenting squares, Savill, 1894.
Using maize flour in, Clark (*Chiozza*), 2007.
Air current inductor for use in, Wawn & Willcox, 2340.
Refrigerators for cooling wort, Severn, 2435.
Chemically decorticating grain for malt, Séville, 2471.
Preventing acetic fermentation, &c. in casks, Dixon, 2609.
Preserving beers in casks, &c., Gibbons & Allison, 2712.
Recovering sour or turned beers, Gibbons & Allison, 2712.
Mashing malt, Lessware, 3338.
Making keeping beers without fermentation, &c., Gill, 3687.
Thermo-regulators for use in process of, Mori, 3904.
Fermenting beer at all seasons, Barlow (*Galland*), 4079.
Cooling brewers' vaults & store cellars, Barlow (*Galland*), 4079.
Fermenting vats for & cooling worts, Barlow (*Galland*), 4079.
Purifying steam for use in, Barlow (*Galland*), 4079.
Drying malt by hot compressed gases, Preiswerk, 4324.
Mashing malt or grain, Thompson, 4328.
Filters for use in, Barlow (*Galland*), 4418.
Filters for use in breweries, Ramsay, 4420.

## Bricks; building blocks:

Moulding and expelling air from, Whittaker & others, 73.
System of drying, Perry, 152.
Utilising slag for making, Luckenbach, 243.
Lubricating moulds in making, Fawcett & Allen, 645.
Applying cements to and constructing blocks, Ross, 850.
Moulding cellular concrete blocks, Holt, 951.
Kilns or ovens for firing, Malpas, 1064.
Brick kilns; heating same, Haseltine (*Bingham*), 1182.
Σ-shaped, for hollow walls or arches, Jensen (*Schönlau*), 1370.
Moulding and pressing, Coward, 1381.
Pressing and moulding, Durand & Marais, 1534.
Moulding and compressing, Randolph, 1648.
Combining glass, &c. for casing, D'Humy, 1710.
Moulding and compressing, Craven, 1732.
Utilising waste heat from brick kilns, Corbett, 1920.
Kiln for burning or baking and working same, Bull, 1977.
Making ornamental, Hyatt, 2015.
Hollow concrete building blocks, Sellars, 2121.
Hollow, for walls, piers, or arches, Prestage, 2160.
Heating kilns for burning, by means of gases, Batchelar, 2299.
Making ornamental and fireproofing, Hyatt, 2359.
Moulding and pressing, Messrs. Ward, 2455.
Making porous, honey-combed, or light, Chevallier, 2528.
Perforated, for annealing wire, &c., Smith & Smith, 2546.
Screw-presses for pressing, Titley, 2658.
Pressing and moulding solid or hollow, Duncan, 3034.
Heating, pugging, moulding, & drying clay for, Prestage, 3192.
Pug-mill and compressing apparatus for making, Pollock, 3235.
In imitation of "pitch-faced" wall stones, Harpin, 3300.
Composition for and making, Tebbutt & Wade, 3368.

**Bricks; building blocks—*cont.***

Constructing and combining kilns for burning, Hall, 3365.
Compressing to avoid cracks, Clayton, 3389.
Moulding, from slag run direct from slag hole, Caddick, 3467.
Moulds for making; lubricating same, Hamblet & Davies, [3550.
Form of brick for "hollow wall" or retort, Lyttle, 3579.
With grooves or hollows for bonding purposes, Wood, 3616.
Moulding, from slag run direct from furnace, Caddick, 3640.
Making flint and pebble blocks, Carmody, 3720.
Moulding and cutting, Murray, 3708.
Pressing or moulding articles in brick trade, Boulton, 3980.
Making, from unground, &c materials, Brownhill, 4015.
From colliery refuse, shale, bind, marl, &c., Brownhill, 4015.
Ornamental, indented, and inlaid for roofs, Hyatt, 4063.
Figured and lettered, for faces of buildings, Hyatt, 4063.
Arched, for roofs, floors, and ceilings, Hyatt, 4063.
Of glass, for roofs and walking surfaces, Hyatt, 4063.
Compound or material for; glaze for same, Baggeley, 4067.
Moulding and pressing, Emmet, 4141.
Moulding or pressing; releasing same, Craven & Craven, 4191.
Drying or partially drying, Jackson, 4219.
Rotating mould machines; lubricating moulds, &c., Beck, 4233.
Hollow building blocks or shells, Sellars, 4266.
Compound for building blocks. Wilkinson, 4267.
Continuous kilns for burning, &c., Cowell, 4408.
Making from "Killas" or "Elvan" rock, Cowell, 4409.
Non-porous for reservoirs, docks, tunnels, &c., Cowell, 4409.
Continuous kilns or ovens and heating same, Stone, 4451.
Pressing or moulding, Brewer (*Muchin*), 4464.

**Bridges; arches; viaducts:**

Corrugated wrought iron plates for, Westwood & Baillie, 341.
Sinking cylinders for pier foundations, Munn & others, 419.
Swing bridges without balance weights, Rendel, 697.
Applying cements to and constructing arches, Ross, 850.
Pontoons for throwing, Hodgson & Sweet, 1478.
Apparatus to be employed as a floating bridge, Pike, 1485.
Sinking foundations for piers, Woodford & Woodford, 1531.
Arches for elevated railways, Newton (*Morgan*), 1675.
Using floating vehicles for light, Thellusson, 2066.
Constructing, to save material and weight, Prestage, 2160.
Making girders for, of cast and wrought iron, Hyatt, 2359.
Raising and lowering lifting bridges, Duckham, 2491.
Sinking cylinders for pier foundations, Munn, 2743.
Electric-light apparatus for arches of river, Johnson (*De Mersanne*), 2787.
Combined cast and wrought metal girders for, Hyatt, 3201.
Swinging bridges for raising sunken ships, Parlour, 3445.
Constructing viaducts on, to relieve traffic, Baylis, 3475.
Low-level bridge with gate bridge in centre, Barnett, 3620.
Wire rope bridge with pillars at intervals, Aitken, 3905.
Interlocking railway draw-bridges, Clark (*Rousseau*), 4517.

**Brine.** *See* Salt.

**Britannia metal (resonant).** *See* Metallic alloys.

**Bromine:**

Obtaining, by dynamo-chemical means, Clark (*Lontin*), 473.
Combined process of obtaining, Heinzerling, 2669.
Obtaining, from sea-wrack, Alexander (*Herland*), 3681.

**Bronzing metals.** *See* Gilding.

**Bronzing or dyeing fabrics.** *See* Dyeing.

**Brooches.** *See* Jewellery.

**Brooms.** *See* Brushes.

**Brushes; brooms; mops:**

For cleansing carriages, walls, &c., Cheatle, 230.
Making backs and handles of "toughened glass," Pearson, 516.
Hair, tooth, nail, crumb, clothes, and other, Pearson, 516.
Pumicine nail, paint, and other, Melton, 620.
India-rubber tooth and flesh brushes or rubbers, Napier, 633.
Rotatory, for cleaning carriages, &c., Earl of Caithness, 703.
Flanged ferrules or caps for painters and artists, Smith, 747.
For boot cleaning machines, Simon, 1293.
Adjustable clip and socket for handles of, Mylchreest, 2082.
Joining edges of brush ferrules, Caddick, 2164.
Connecting, to their sticks or handles, Longbottom, 2288.
Fixing bristles of paint or other, Longbottom, 2288.
Compound for making handles of, Thayer (*Smith*), 2513.
For scouring, painting, whitewashing, &c., Barker, 3329.
For bill-sticking and destroying vermin, Barker, 3329.
Hair, tooth, nail, shaving, bath, and horse, Barker, 3329.
For cleaning ships, carriages, roads, yards, &c., Barker, 3329.
Employing and treating grasses for making, Ascough, 3333.
Forming, binding, carrying, and fixing tufts, Ascough, 3333.
Tuft holder and magnetic tuft carrier, Ascough, 3333.
Mechanical arrangements for making drawn, Ascough, 3333.
Magnetic flesh, hair, and tooth-brushes, Lyon, 3382.
Securing bristles in, Quackenbush, 3448.

**Brushes, brooms; mops—*cont.***

Securing brooms or brushes to handles, Martin, 3451.
Securing handles to brush or broom heads, Peel, 3462.
For boot-cleaning and polishing machines, Somerville, 3551.
Revolving, for painting machinery, Heywood, 3660.
For painting, varnishing, &c. machines, Paget, 3661.
Making tooth, of tonic and antiseptic woods, Truefitt, 3915.
Broom heads with two handle holes, Cole, 4016.
Making piassava and other large holed pan-work, Cay, 4072.
Brushes for self-cleansing valves, Thornelow, 4063.
Weaving bristles in tapes; fixing same, Richardson, 4131.
Applying electric briquets or lighters to, Lake (*Van Tenac*), [4296.
Hollow handles for long handled brooms, Sutherland, 4344.
For cleaning windows, carriages, &c., Sutherland, 4344.

**Brushing-hooks for cutting hedges.** *See* Plants.

**Buckets; pails; tubs:**

Paper material for making buckets, Gandy, 52.
Making wooden pail handles, Haseltine (*Lemon*), 1781.
Slop pail lids or covers, Topham & Snushall, 1821.
Packing lids or covers of slop pails, Dixon, 2082.
Preparing or cutting tub staves, Johnson (*Pile*), 3224.

**Buckles; clasps:**

Suspension, and adjustable tab, Weldon, 77.
Spring clip for girdles, scarfs, &c., Nelson, 145.
Making metal dies for buckles, Lake (*Champney*), 842.
Making imitation steel buckles, by stamping, Deterre, 3226.
Lever buckles, for braces, belts, or bands, Eyland, 3409.
Rein, tug, rump, and clamp buckles, Clark (*Reaser*), 3599.
Lever buckles for braces, &c., Harrison & Priestland, 3667.

**Buckles or bale-ties.** *See* Packing.

**Buffers (marine).** *See* Ship-building.

**Buffers (railway).** *See* Railway-buffers.

**Buffets.** *See* Furniture.

**Building blocks.** *See* Bricks.

**Buildings:**

Peat compound for, Wilkinson, 60.
Lattice framework covering for ceilings, Rideal, 113.
Compound for and forming parts of, Pope, 159.
Compound for forming stairs or steps, Pope, 159.
Making fire-proof deposit vaults of slag, Luckenbach, 243.
Corrugated wrought iron plates for, Westwood & Baillie, 341.
Making plain flat fire-proof ceilings, Swarbrick, 491.
Sheds for storing, &c. peat, Morgan-Brown (*Verdier*), 654.
Surfaces for steps, &c., Haseltine (*Keene & Sawyer*), 700.
Applying cements to and constructing, Ross, 850.
Cements for and constructing copings, Ross, 850.
Apartments for infectious patients, Currall, 858.
Heat or pressure indicator and alarm for, Bagot, 945.
Hoisting and fixing concrete blocks in erecting, Holt, 951.
Fire-proof composite structures, Holt, 951.
Fire-proofing, Wirth (*Kreittmayr*), 959.
Metal fastener for scaffolding, Lake (*Bouillianf*), 1033.
Substitute for scaffolding, Kennedy, 1176.
Grooving slate for steps or landings, Elwes, 1386.
Fire-proof coating for woodwork of, Denniston, 1466.
Pumps for dredging foundations, Woodford & Woodford, 1531.
Producing ceilings in slabs or sheets, Hitchins, 1665.
Casing consoles, trusses, panels, &c., D'Humy, 1710.
Combining glass, &c. for decorating, D'Humy, 1710.
Casting rhones or gutters and balusters, Hutchison, 1783.
Constructing fire-proof, and fire detector for, Perceval, 1839.
Constructing, for breweries, Walker, 1886.
Fixing scaffolding and raising material, Yeadon, 1907.
Ornamenting, weather-proofing, and fire-proofing, Hyatt, 2015.
Floodway for warehouses, Clark (*Morrell*), 2024.
Erecting, of hollow concrete blocks, Sellars, 2121.
Temporary sheds, &c. window and door heads, Sellars, 2121.
Constructing, of concrete slabs, Lascelles, 2151.
Constructing, to save material and weight, Prestage, 2160.
Forming foundations for, on sand, Cooke & Thompson, 2194.
Compounds for covering basements of, Nicoll, 2347.
Ornamenting, weather-proofing, & fire-proofing, Hyatt, 2359.
Facing concrete, to resemble bricks, Hyatt, 2359.
Grating-panel for inlaying and joists, Hyatt, 2359.
Lettering and numbering fronts of, Hyatt, 2359.
Erecting concrete, Guthrie, 2378.
Supporting hearth-stones and plates, Westmorland, 2562.
Paving for passages, stair-cases, and cellars, Davison & others, [2656.
Refrigerating store-house for preserving food, &c., Foster, 2683.
Erecting, of waste pieces or blocks of wood, Westman, 2691.
Single and double purchase hoisting apparatus, Batt, 2810.
Cellars or store rooms, Hughes (*Currie & Holsmann*), 2825.
Gas retort and purifying houses, Anderson, 2843.
Securing or tying scaffolding, Matthews, 2956.
Method of wedging brick, concrete, &c. structures, Hyatt, 3261.

**Buildings**—*cont.*

Convex ceilings for theatres or halls, &c., Bellini, 3215.
Self-sealing vault covers, Soley (*Collinson*), 3260.
Substitute for scaffolding, Kennedy, 3347.
Illuminating ornamental ceilings for, Hyatt, 3357.
Fire-proof and water-tight structures, Hyatt, 3357.
Prisons, jails, bank-vaults, &c., Harris (*Cook & Heath*), 3375.
Sheds; withdrawing coverings of same, Slater, 3391.
Fire-proof closets for, Hosmer (*Shepard*), 3469.
Illuminating opaque objects for decorating, Bacon, 3480.
Collecting and distributing water in, Clark (*Morrell*), 3739.
Terrace houses with "lean to" for stair-case, Palliser, 3819.
Asphaltum mastic for foundations, Clark, 3902.
Floodways for floors of warehouses, &c., Clark (*Morrell*), 3923.
Glazed stone facing for exterior of, Lipscombe, 4055.
Trusses, copings, balusters, and pier caps, Lipscombe, 4055.
Window sills and arches and corner blocks, Lipscombe, 4055.
Parapets, cornices, fittings, terminals, &c., Lipscombe, 4055.
Disengaging hook for apparatus used in, King, 4056.
Ornamenting asphalt surfaces of, Hyatt, 4063.
Fire-proof load-supporting ceilings, Hyatt, 4063.
Inlaid and ornamental ceilings, Hyatt, 4063.
Tiles for facing concrete of, Hyatt, 4063.
Forming letters and figures, &c. upon the face of, Hyatt, 4063.
Illuminating constructions, Hyatt, 4063.
Machine for lowering building materials, Pothetos, 4065.
Compound or material & glaze for steps, &c., Baggeley, 4037.
Constructing fermenting vaults, Barlow (*Galland*), 4079.
Planing, roughing, &c. steps & cope stones, Dunlop & Ree, 4120.
Metallic frames and coverings for, La Mothe, 4213.
Erecting, of hollow blocks or shells, Sellars, 4266.
Compound for use in constructing, Wilkinson, 4267.
Means of exhibiting when rooms, &c. are engaged, Jones, 4294.
Lowering apparatus for builders, and use in painting, &c. house [fronts, Holthausen, 4481.

**Buildings (extinguishing fire in).** *See* Fire-engines.

**Buildings (heating and warming).** *See* Heating.

**Buildings (lighting).** *See* Lamps.

**Buildings (ventilating).** *See* Ventilating.

**Bullets.** *See* Shot.

**Bungs and corks.** *See* Cork.

**Buoys:**

Adapting lights and signals to, Johnson (*Lamarre*), 400.
Electric-light apparatus for, Johnson (*De Mersanne*), 2787.
Automatic pneumatic signal, Clark (*Courtenay*), 4148.

**Burglar alarms.** *See* Signals (miscellaneous).

**Burners (gas and liquid).** *See* Gas-burners.

**Burnishing cards.** *See* Cards.

**Burnishing photographs.** *See* Photography.

**Burring and clearing fibres.** *See* Spinning (batting).

**Bushes and bearings.** *See* Bearings.

**Bushes or ferrules.** *See* Ferrules.

**Bustles.** *See* Dresses.

**Busts.** *See* Sculpture.

**Butter:**

Tubs or packages for holding, Edwards (*Sheldon*), 1106.
Dish or receptacle for, for table use, Green, 2896.
Mixture for preserving, Ermatinger (*Sacc*), 3073.

**Button-holes:**

Sewing-machine for overseaming, Vosper & Rogers, 251.
Sewing-machine for stitching, Reimann, 907.
Removable casings or linings for, Lake (*Balmforth*), 1822.
Measuring and cutting apparatus for, Cramp, 2444.
Machine for sewing, Jensen (*Kallmeyer & Schmidt*), 2457.
Sewing-machine for stitching, Hughes, 2456.
Sewing-machine for stitching, in linen, &c., Patterson, 3021.
Sewing-machine for stitching, Hubbard, 3597.
Sewing-machine for stitching, Keith, 4556.

**Buttons and similar dress fastenings:**

Instrument for setting fasteners, Bousfield (*Heaton*), 18.
Metallic fasteners for attaching, Bousfield (*Heaton*), 18.
Fastening for, and tool for fixing same, Feldman, 88.
Stud fastening, Stokes & Goff, 254.
Attaching, to wearing-apparel, Read, 379.
Composition for making dress fastenings, Cole, 495.
Spring fastening for sleeve-links, studs, &c., Garnier, 555.

**Buttons and similar dress fastenings**—*cont.*

Fastenings for solitaires, studs, &c., Aston, 609.
Solitaires, sleeve-links, and like fastenings, Cheshire, 764.
Making metal dies for, Lake (*Champney*), 842.
Sleeve-links, solitaires, and studs, Brookes (*Durrande*), 865.
Fastener for, and pincers for attaching same, Marsden, 985.
Solid double flanged, to dispense with sewing, &c., Keats, 989.
Securing upholstery buttons, Cox & Hosmer (*Norwood*), 1067.
Fastening for articles of dress, West, 1287.
Lathes for turning, Spill, 1296.
Using dried spent tan for making, Murdoch (*Honnaij*), 1397.
Solitaires and sleeve-links, Rollason & Wood, 1407.
Solitaires and studs, Holmes, 1473.
Studs for collars, belts, wearing-apparel, &c., Page, 1504.
Solitaires, sleeve and other studs, and, Jacob & Brown, 1647.
Fasteners for securing buttons, Butler, 1664.
Making solitaires in two parts, Greaves, 1928.
Spring button link or fastener, Besançon, 1951.
Solitaires and studs, Greaves, 2019.
Fancy, Loewenthal, 2053.
Fancy buttons with metal tops & wooden cores, Berman, 2185.
Combined collar-stud and cravat fastener, Brockell, 2298.
Fastenings for solitaires, links and studs, Littlehales, 2310.
Cutting or shaping bone, ivory, and wood, Mincher, 2449.
Cloth faced or solid fronted fancy, Weintraud & Joyce, 2450.
Studs, sleeve-links, and solitaires, Pradier, 2456.
Compound for making, Thayer (*Smith*), 2513.
Substitute for, for leather garments, Haddan, 2836.
Studs or solitaires, Muirhead, 2869.
Ornamental ring fastening, Heilborn, 2969.
Solitaires, sleeve-links, &c., Atkins, 2970.
Fastenings for solitaires, links, and studs, Pearson, 3183.
Capped button lock or fastening, Butler, 3259.
Detachable fastening for buttons, &c., Heath (*Young*), 3385.
Stud fastener for gloves, boots, cuffs, &c., Read, 3525.
Presses, &c. for making composition, Hess (*Hess*), 3613.
Pincers for setting, Bousfield (*Heaton*), 3686.
Magnetised buttons, Welton, 3727.
Compound or "caoutchouc-aluta" for making, Jenks, 3862.
Mottling and polishing vegetable ivory, Hesse, 4197.
Fastenings for cuffs, collars, &c., Lempriere, 4204.
Screw fastener for studs, links, and solitaires, Pradier, 4333.
Lace or cord fasteners, Haddan (*Reeves & Train*), 4375.
For garments, boots, &c.; attaching same, Stonehain, 4558.

## C.

**Cabinets.** *See* Furniture.

**Cabinets (cigar).** *See* Tobacco.

**Cable stoppers; chain cables.** *See* Chains.

**Cables or ropes.** *See* Ropes.

**Cables (telegraph).** *See* Telegraphs.

**Cabs.** *See* Carriages.

**Cages for hoists.** *See* Hoists.

**Caissons:**

Sinking, for foundations, Munn, 2743.

**Calcium.** *See* Lime.

**Calcining ores.** *See* Smelting.

**Calculating figures.** *See* Teaching.

**Calendars; almanacks; date indicators:**

Combining perpetual, with pencil-cases, &c., Howland, 524.
Advertising and other date indicators or, Whiteman, 1129.
Applying calendars to almanacks, &c., Whiteman, 1129.
Date and month indicators for clocks, &c., Southwood, 2140.
General advertising calendar, Gumprecht, 2237.
Calendar watches and clocks, Adorno, 2382.
Perpetual, for articles of daily use, Fisslthaler, 2868.
Applying, to tobacco pouches, &c., Macintosh, 3933.
Calendar watches and clocks, Adorno, 4408.

**Calendering fabrics.** *See* Finishing.

**Calking ships.** *See* Ship-building.

**Callipers.** *See* Mathematical instruments.

**Caloriators.** *See* Electricity (generating).

Caloric-engines. *See* Air and gas engines.

Calori-chaussure. *See* Boots and shoes.

Camelia silk. *See* Fabrics (miscellaneous).

Cameras. *See* Optical instruments.

Camp and field equipage:
Portable camp cooking stove, Tomkins, 114.
Portable cooking stove and utensils, Dann (*Gervais*), 1741.
Utilising trains as ambulances, Johnson (*Rikli*), 1793.
Aerotherm portable oven, Bonneville (*Lesobre*), 1937.
Equilibrated ambulance waggons, Mayer, 2202.
Sacks for cloaks, usable as pillows, Huch, 2483.
Canteen combining bed, tent, &c., Gedge (*Manens*), 2924.

Cams; wipers:
For working hammers in making untapped nuts, Marsden, 177.
For sewing-machines, Vosper & Rogers, 251.
For boot and shoe pegging machines, Wirth (*Kuhlmann*), 679.
For rotary engines and pumps, Patrick, 2499.
Wiper wheels for working riddles or sieves, Norman, 3414.
For ore-stamping or crushing machines, Boyns, 3418.
For working double-acting force pumps, McMinn, 3457.
Hinged rake, for harvesters, Howard, 3545.

Canals:
Excavating earth for forming, King, 3536.

Canals (dredging). *See* Dredgers.

Candelabra. *See* Lamps.

Candles; candlesticks; night-lights:
Candle holders for candlesticks, &c., Zimmermann, 95.
Machine for making paper wicks, Aspinwall, 249.
Night-lights for warming food, &c., Clarke & Clarke, 685.
Chamber and other candlesticks, Brown, 1065.
Carbon, &c. wicks for night-lights and candles, Hellier, 1233.
Treating fatty matters or tallow for hard, Lombardon, 1327.
Candlesticks and extinguishers, Caddick, 2164.
Transforming oil lamps into night-lights, Palling, 3053.
Candle holder for sewing-machines, &c., Willson, 3724.
Forming continuous slivers for candle-wick yarn, Hill, 3738.
Portable candle holder for carriages, &c., Joseph, 4000.
Candlesticks with reflector and receptacles for candles, [matches, &c., Parkes, 4457.

Canes and walking-sticks. *See* Walking-sticks.

Canes (dyeing). *See* Dyeing.

Canisters:
Decorating metal, with looking glass, Burton, 2208.
Japanning or ornamenting grocers', Ludlow, 2750.

Cannons. *See* Fire-arms.

Canoes (propelling). *See* Propelling ships.

Cans; tins; drums:
Oil-cans or feeders for spinning frames, Kaye & others, 1387.
Oil-cans for oiling engines, &c., Johnson (*Ireland*), 1757.
Pouring or drawing oil, &c. from cans, Randall, 2252.
Oil-cans for sewing-machines, Bishop (*Bishop*), 2920.
Forming colored impressions on metal sheets for, Guéneux [& Normand, 3185.
Sealed supply tubes for oil, Howes, 3583.
Making cotton-can rings, Brayshaw, 3618.
Protecting drums for containing or transporting oils, &c. [Ryland, 4368.
Implement for opening provision, Helwig & Cox, 4455.
Tins for preserved meats, provisions, &c., Groom, 4548.

Cans (watering). *See* Watering pots.

Canteens. *See* Camp and field equipage.

Caoutchouc. *See* India-rubber.

Caoutchouc-aluta. *See* India-rubber.

Capes and coats. *See* Wearing-apparel.

Cap-frames. *See* Spinning (twisting).

Caps and head coverings. *See* Hats.

Caps (percussion):
Making, out of steel coated with other metals, Sanders, 330.
For central fire cartridges, Barnett & Zieschang, 1396.
Tools for cutting out, to prevent waste, &c., Nelson, 1990.

Capstans. *See* Hoists.

Capsules for medicaments. *See* Medicines.

Capsuling bottles. *See* Bottle-stoppers.

Carafes frappées. *See* Refrigerators.

Caramel. *See* Sugar.

Carbon. *See* Charcoal.

Carbonates (alkaline). *See* Alkalies.

Carbonates (metallic). *See* Metallic salts.

Carbonates of lime. *See* Lime.

Carbonic acid gas. *See* Acids.

Carbonic oxide. *See* Gas (making).

Carbonising or cleaning fibres. *See* Fibres.

Carbonising wood, bone, &c. *See* Charcoal.

Carboys. *See* Bottles.

Carburetting; carburetters:
Non-luminous gases, Kidd (*Arnold*), 66.
Apparatus for carburetting air or gases, Ross, 197.
Air for lighting or heating, Mather, 211.
Steam for fuel in furnaces, Marchant, 304.
Air or gas, Speir & Mather, 622.
Air for lighting or heating, Neuhaus, 668.
Air; apparatus for same, Schüssler, 2000.
Foul gas or vapour, Lake (*Turner*), 2046.
Air; apparatus for same, Fageol, 2251.
Air in and for burners, Newton (*Nobel*), 2523.
Water-gas, oil-gas, and poor gases, Aitken & Young, 2725.
Aqueous vapors in making hydrogen gas, Spencer, 3205.
Air; apparatus for same, De Ewer & Bloomfield, 3250.
Coal gas, Weston, 3301.
Air; apparatus for same, Hahn (*Daschbach*), 3331.
Air or gas; carburetters, Grundy (*Allen*), 4044.
Steam for illuminating gas, Lake (*Beatley*), 4117.
Combined and non-luminous gases, Colls, 4362.

Carding fibres. *See* Spinning (carding).

Carding or dressing cloth. *See* Finishing.

Cards; playing cards:
Frames for exhibiting, Rideal, 113.
Holding, cutting, gilding, and burnishing, Ritchie, 1034.
Making black and colored borders on, Parkins, 1214.
Indicating denomination of playing cards, Levy, 2583.
Laying out, for bordering with black, &c., Lyon, 2598.
Cases for, to attach to watch chain, &c., Russell, 2870.
Combined holder and fastener for, Holme, 3270.
Press for burnishing or polishing, Taylor, 3815.
Waterproofing, Clamond, 4176.

Cards (jacquard). *See* Weaving.

Cards (printing). *See* Printing.

Cargo (loading and unloading). *See* Ships' cargoes.

Carpets; druggets and carpet linings:
Operating spiral needles in sewing, Garland, 229.
Sewing-machine for making, Vosper & Rogers, 251.
Carpet beating machine, Simmons, 1010.
Waddings and felted fabrics for, Oldroyd & Blamires, 1427.
Sewing-machine for stitching, Garland, 2248.
Material for making velvet pile, Picheral, 2344.
Overseam sewing-machine for, Boone & Detrick, 2553.
Cleaning, Lake (*Blake*), 2847.
Unwoven fabric for, from silk noil, &c., Hebblethwaite, 2857.
Druggets and carpet linings, Hebblethwaite, 2857.
Waddings and felted fabrics for, Oldroyd & Blamires, 2858.
Vegetable leather suitable for, Tongue (*Jolissaint-Vonèche & [others*), 3290.
Sewing-machine for stitching, Webster, 4146.
Unwoven fabric for, from silk noil, &c., Hebblethwaite, 4305.
Druggets and carpet linings, Hebblethwaite, 4305.

Carpets (weaving). *See* Weaving.

Carriage axles. *See* Axles.

Carriage lamps. *See* Lamps.

Carriage locks or fastenings. *See* Locks.

**Carriage wheels.** *See* Wheels for carriages.

**Carriages; carts; waggons; hearses; omnibuses:**
Wheel guard or safety apparatus for, Bois, 45.
Material or paper felt for bodies of, Gandy, 52.
For fire-extinguishing apparatus, Johnson (*Baßolas*), 138.
Close or open on a pair of wheels, Harvey, 222.
Wagons for carbonised materials, Weare & Isherwood, 326.
Arranging self-propelling, worked by steam, Todd, 355.
Couplings for traction carriages, Todd, 355.
Keeping dog-cart bodies, &c. horizontal, Osmond, 547.
Spiral bearing springs for, Byron (*Godley*), 550.
Loading, with grain, salt, &c. on quays, Goodwin, 559.
Lock for tip-carts, Whitelaw, 641.
Steps and shaft plates for, Haseltine (*Keene & Sawyer*), 700.
Panels for, Block, 718.
Opening and closing window-sashes of, Beaumont, 823.
Slop, mud, dust, and other carts, Livingstone, 837.
Bed or couch for, Lake (*Denéef & Wilkin*), 843.
Iron framing for bodies of carts, &c., Fisher & Marshall, 901.
Wind screens for open, Cogswell, 913.
Lever for propelling or moving, Hughes (*Heshuysen*), 924.
Poles for, and disconnecting pole chains, Rowand, 939.
Securing buttons in seats, &c., Cox & Hosmer (*Norwood*), 1067.
Hearses, biers, pleasure vans, &c., Hatchard & Talbot, 1095.
Lifting street refuse into carts, McCarthy, 1146.
Funereal carriage or hearse, Dottridge, 1183.
Adjustable draught spring for, Kearton, 1232.
Spring drawing gear for, Brown, 1280.
Spiral springs and screw fastening for heads of, Harvie, 1348.
Collecting, elevating, and depositing crops in, Buchan, 1398.
Water and liquid manure carts or vans, Bayley, 1447.
Opening and closing windows of, Parlour, 1459.
Hearses, for passing into church, &c., Williamson, 1490.
Locking or turning round gear for drags, &c., Shanks, 1507.
Manumotive, Bodel & others, 1559.
Locks or fastenings for doors of, Bilbrough, 1564.
Seats and backs for, Weatherby (*Mason*), 1660.
For imitation snow slopes, Hodgson, 1740.
Loading and unloading sacks, Sinkwell & Tooley, 1908.
Collecting and loading hay & corn into wagons, Allanson, 2057.
Bearing springs for, Spencer, 2062.
For travelling on either land or water, Thellusson, 2066.
Handles for; fixing same, Sleigh & Hawley, 2085.
Bogies, &c. for steam, Alexander (*Rowan*), 2171.
Supporting ends of steam, on bogies, Alexander (*Rowan*), 2171.
Arranging springs for raising, &c. heads of, Rowse, 2296.
Blade or plate springs for, Holmes (*Porter*), 2311.
Dressing or preparing leather for, Tombs, 2333.
Pole heads for; detaching pole chains, Bray, 2705.
Cart for life-saving apparatus, Rogers & Anderson, 2755.
Hanging and connecting bodies of dog carts, &c., Osmond, 2756.
Connecting shafts to springs & body of gigs, &c., Osmond, 2756.
Triple suspension to deaden shocks, &c. in, Wise (*Anthoni*), [2828.
Springs, &c. for, and arranging same, Wise (*Anthoni*), 2828.
Placing arms in omnibuses, Clark & Thomson, 2864.
Outside coverings for omnibuses, Newman, 2939.
Cramp for use in securing loaded waggons, Matthews, 2956.
Gathering and loading hay & corn into waggons, Loader, 3009.
Indicating duration, &c. of stoppages, Beaumont, 3079.
French vegetable leather for, Tongue (*Jolissaint-Vonèche & [others*), 3290.
Self-supplying brushes for cleaning, Barker, 3329.
Reducing friction in locking apparatus of Lillie, 3355.
Adjustable tilts or covers for, Slater, 3391.
Outside coverings for omnibuses, &c., Percy, 3393.
Roofs for milk carts and lurries, Percy, 3393.
Combined street-sweeping & cart-loading machine, Case, 3447.
Connecting shafts to vehicles, Hill & others, 3452.
Four-wheeled steam carriages, Touaillon (*Bollée*), 3521.
Locking or turning gear for, Touaillon (*Bollée*), 3521.
Gathering & loading hay & corn into wagons, Wakefield, 3607.
Machine for painting, Paget, 3661.
Tipping car or wagon for lime & cement kilns, Mumford, 3665.
Tipping car or waggon for mortar, mud, &c., Mumford, 3665.
Automatic outside seats for omnibuses, Smith, 3726.
Open hansom cabs ("Triumph cab"), Waldock, 3783.
Hinging doors of; weather strips, Clark (*Gégnon*), 3743.
Dress and finger guards for, Clark (*Gégnon*), 3743.
Blade and plate springs for, Holmes (*Porter*), 3781.
Suspending platforms in, to prevent sickness, Brown, 3898.
Hansom cab windows; raising & lowering same, Spencer, 3912.
Locking movements for, Duddell, 3939.
Moveable arms for omnibus seats, King (*Lauder*), 3975.
Ambulance for travelling by land, McLean, 4034.
Curving or "setting" springs of, Tongue (*De Forest*), 4081.
Metallic frames and coverings for bodies of, La Mothe, 4213.
Pole chain hooks for vans and omnibuses, Meadows, 4223.
Safety finger guard for doors of, Curtis, 4288.
Preventing or lessening vibration and shock in, Scott 4297.
Raising, &c. heads of; head framings for, Scott, 4297.
Bearing and draw springs for, Scott, 4297.
Brush for washing and cleaning, Sutherland, 4344.
Balancing weight of carts on inclines, &c., Barrett, 4511.
Steam-carriages for common roads, Bünger, 4555.

**Carriages (gun).** *See* Fire-arms.

**Carriages (heating and warming).** *See* Heating.

**Carriages (propelling).** *See* Propelling.

**Carriages (railway).** *See* Railway carriages.

**Carriages (tramway).** *See* Tramway carriages.

**Carriages used in making clay retorts, &c.** *See* [Earthenware.

**Carriages (ventilating).** *See* Ventilating.

**Carts.** *See* Carriages.

**Cartridges; cartridge cases; cartridge holders:**
Forming cases of metallic, Brookes (*Hobbs & Orcutt*), 125.
Boxes, usable either on or off the fire-arm, Lee, 131.
Making cases out of steel coated with metals, Sanders, 330.
Holding and carrying fire-arm, Newton (*Metcalf*), 771.
Creasers for creasing, Rawbone (*Rawbone*), 955.
To prevent fouling and leading of guns, Jackson, 1072.
Caps for central fire, Barnett & Zieschang, 1396.
Cases for, for breech-loading fire-arms, Haden, 1420.
Gunpowder blasting charges, Murdoch (*Müller*), 1885.
Pannier or cartridge carrier for bolt guns, Greene, 2241.
Cartridge cases to prevent escape of gas, Clark, 3038.
Solid charges or cartridges, Dittmar, 3088.
Printing cartridge cases, Powell & Daugerfield, 3553.
Ball cartridge for shooting galleries and sporting purposes, [Clark (*Le Bert*), 3882.

**Cartridges (tobacco).** *See* Tobacco.

**Cart-tilts.** *See* Tarpaulins.

**Carving:**
Wood, ivory, stone, &c., Notton, 743.
Wood, ivory, stone, &c., Notton, 2791.
Portable apparatus for, driven by air, &c., Lawrence, 4398.

**Cascades.** *See* Waterfalls.

**Casements.** *See* Windows.

**Cases for cigars and pipes.** *See* Tobacco.

**Cases or boxes.** *See* Boxes.

**Cash-boxes.** *See* Boxes.

**Caskets.** *See* Boxes.

**Caskets or coffins.** *See* Coffins.

**Casks; barrels; kegs:**
For carrying petroleum, &c., Sinibaldi (*Sinibaldi*), 136.
Preparing and cutting staves for, Thornley & Buxton, 188.
Filling, with beer & carbonic acid gas, Gillinan & Spencer, 234.
Splaying and bending hoops for, Bradshaw, 364.
Constructing boats' breakers of iron, Dignum, 515.
Kegs, for explosive compounds, Chambers, 682.
Regulator for charging liquids with gas in, Lake (*Shepard & [Seaman*), 761.
Forming heads of wood, Hodgson, 1405.
Compound bungs for, Tongue (*Montaugé & Brandely*), 1477.
Edging and centring wood staves for, Thornley & Buxton, 1518.
Taps or valves for drawing off liquids from, Goddard, 1581.
Series of machines for making, Clark (*Deroide*), 1588.
Drawing off liquors from, by pressure in same, Edwards, 1616.
Of composite metals and wood, Walker, 1887.
Self-adjusting liquid extractors for, Eli, 2027.
Dispensing with stillages and tilters, Butterworth, 2238.
Pouring or drawing oil or other liquids from, Randall, 2252.
Plug & tube for drawing-off liquors from, Miles & Tonge, 2384.
Treating, for storing & preserving beer, wine, &c., Dixon, 2609.
Registering and drawing liquids from, Rimington, 2630.
Cutting and shaping staves, Hewitt & Heys, 2726.
Drawing-off ales, wines, &c. from top of, Mason & Anderson, 2904.
Indicating quantities drawn and remaining in, Newbold, 2964.
Preparing or cutting staves of, Johnson (*Pile*), 3224.
Cutting or jointing staves, Ransome, 3395.
Self-acting apparatus for tilting, Cooper, 3788.
Drawing ale, &c. from two, simultaneously, Ashton, 4006.
Connections for withdrawing liquids from, Crowther, 4074.
Drawing beer, &c. from, without tilting, Hill, 4111.
Protecting casks for containing or transporting oils, varnishes [spirits, &c., Rylands, 4368

**Casters:**
Combined ball and roller, Kendall & Robinson, 588.
Ball and wheel for furniture, &c., Edwards (*Crist*), 748.
For sewing-machine tables, Harrison & Mabson, 1575.

## Casters—*cont.*

Ball, Kidder, 1614.
Socket for ball, Mercer, 1720.
Roller and discs, for furniture, Lasnier, 1833.
Sockets for attaching, to furniture, Mylchreest, 2082.
Roller, for furniture, Browne (*Drevelle & others*), 2386.
Socket and plate, for furniture, Atkins, 2773.
Reducing friction in ball, Lillie, 3355.
Ball and socket, for furniture, hand barrows, &c., Jeyes, 3383.
Ball, for furniture and skates, Bonneville (*Rousseau*), 3522.
Ball, for physical instruments, &c., Bonneville (*Rousseau*), 3522.
Or rollers for chairs, tables, &c., Colletto, 4394.

## Casting and moulding metals:

Or uniting parts of hammers, Hughes (*Parker*), 61.
Inscribed plates in lieu of engraving, Mallet, 144.
Moulds for casting inscribed plates or surfaces, Mallet, 144.
Toothed wheels and other circular articles, Scott, 170.
Substitute for moulding sand, from slag, Luckenbach, 243.
Links for chains or cables, Handyside, 376.
Internal stoppers for aërated liquid bottles, Vallet, 490.
Clips, slides, or fastenings for boots, shoes, &c., Jones, 595.
Wheel centres on to tyres, Hadfield, 814.
Steel ingots, Scott, 816.
Apparatus for casting printers' leads, Wood, 1220.
Plates for ornamental printing, &c., Brown, 1275.
Draughts and "terrets" on hames, Harlow, 1356.
Cores used in casting holes in railway tyres, &c., Swift, 1524.
Covers or protectors for top of ingot moulds, Carulla, 1543.
Combining cast iron with wrought iron, Chalk & Chalk, 1583.
Cylinders, &c. of liquid meters, Jennings & Pocock, 1599.
Discs for coining and other forms, Varley, 1635.
Forming moulds for stereotype plates, Trier, 1659.
Type for transfer purposes, &c., Bartlett & Murray, 1746.
Moulds for pipes, rhones, balusters, &c., Hutchison, 1783.
Mould ramming machines, Hutchison, 1783.
Blanks for shovels, scoops, &c., Abel (*Binns & Barnes*), 1898.
Smooth and bright cast iron, Gedge (*Collignon*), 1905.
Sad and other solid hand irons with brass faces, Benton, 1935.
Hollow fire-bars and tubes; moulds, Tongue (*Zegut*), 1978.
Steel tramway wheels, Hadfield, 2051.
Moulds for stereotype plates, Morgan-Brown (*Harding & Johnson*), 2119.
Fusible cores and patterns for, Haseltine (*Grasser*), 2467.
Porous, elastic, and other moulds, Haseltine (*Grasser*), 2467.
Under pressure; furnaces for, Haseltine (*Grasser*), 2467.
Stereotype plates, Dillon, 2613.
Wheel, &c. moulding machine, Billington & Darbyshire, 2709.
Strickling apparatus, Billington & Darbyshire, 2709.
Patterns and moulds, Billington & Darbyshire, 2709.
Small malleable cast-iron nails, Maddock, 2757.
Moulds or cores for casting pipes, tubes, &c., Toussaint, 2840.
Mould cores for pipes, &c., Toussaint, 2937.
Type casting machine and moulds, Westcott 2965.
Moulds for pipes, columns, or cylinders, McNish, 3006.
Railway wheels in one, Light, 3062.
Rendering steel castings less honey-combed, Willans, 3197.
Beams, axles, rails, wheels, &c. in heated moulds, Hyatt, 3201.
Moulding toothed wheels, Scott, 3204.
Dividing apparatus for machines and trammels, Scott, 3204.
Imitation jewellery to be set with stones, Detenre, 3227.
Foundry stoves for drying moulds and cores, Fisher, 3304.
Gas-burners by electro-deposition, Jewitt (*Rose*), 3440.
Axle-boxes or bushes, &c.; screw cores for same, Norfolk, 3574.
Mounting & actuating scratch brushes, Johnson (*Blake*), 3678.
Railway & tram-car wheels; mould, Hadfield & Mallaband, 3689.
Bent or curved soft metal tubes, Edwards (*Mitchell*), 3764.
Moulds for, sinking cylinders, pipes, piles, &c., Fisher, 3883.
Ingot moulds for casting Bessemer steel, &c., Carlton, 3959.
Plumbers' traps of lead under pressure, Lake (*Du Bois*), 4026.
Metal lattice rafters for roofs, Hyatt, 4063.
Steel in ingot moulds under pressure, Copeland, 4144.
Flanged pipes, columns, posts, lamp pillars, &c., Roberts, 4278.
Moulds, flanging apparatus and patterns for, Roberts, 4278.
Pipes, elbows, and similar articles, Harlow, 4402.
Rain-water pipes, gutters, &c., Morrison, 4531.

## Casting and moulding plastic materials:

Bricks, tiles, &c., Whittaker & others, 73.
Slag for various purposes, Luckenbach, 243.
Compounds for, and making flexible casts, Loewenberg, 420.
In imitation of leather, fabrics, &c., Lake (*Knelles*), 486.
Moulds for, in imitation of fabrics, &c., Lake (*Knelles*), 486.
Peat into blocks, Morgan-Brown (*Verdier*), 654.
Socketted pipes from clay, &c., dies for same, Robinson, 795.
Roofing, paving, and other tiles, Smith & Goodfellow, 853.
Compressing and shaping tobacco pipes, Rankin, 943.
Cellular concrete blocks; moulds for same, Holt, 961.
Compounds and moulds for, Wirth (*Kreittmayr*), 959.
Castings resembling ivory, Wirth (*Kreittmayr*), 959.
Method of coating castings, Wirth (*Kreittmayr*), 959.
Slag into a stony or basaltic mass, Dähne, 1052.
Boxes and other hollow articles of pulp, Wheeler & Jerome, 1080.
Crucibles and other like articles, Morgan, 1149.
Moulding artificial fuel, peat, clay, &c., Kinsey, 1442.

## Casting and moulding plastic materials—*cont.*

Compounds for corks, &c., Tongue (*Montaugé & Brandeis*), 1467.
Blocks of chloride of sodium or potassium, Brock, 1362.
Moulding or pressing bricks, &c., Durand & Marais, 1534.
Discs and other forms in glass, &c., Varley, 1635.
Glass and glass articles; moulds for same, Siemens, 1657.
Glass reservoirs for oil lamps, Lomax, 1643.
Bricks or blocks of asphalte, clay, &c., Randolph, 1668.
Moulding salt for making soda sulphate, Stevenson, 1725.
Bricks, tiles, &c., Craven, 1732.
Compound for taking casts, Loewenberg, 1837.
Earthenware socket pipes, Doulton, 1847.
Tiles, Jensen (*Schlickeysen*), 2124.
Moulding and pressing bricks, Messrs. Ward, 2455.
Screw-presses for pressing bricks, &c., Titley, 2668.
Moulding and shaping clay tobacco-pipes, Golding, 2833.
Bricks, roofing, and flooring tiles, and clay pipes, Duncan, 3054.
Bricks, tiles, slabs, or blocks, Prestage, 3122.
Compressing and moulding bricks and tiles, Pollock, 3226.
Moulding clay retorts, &c., Ingham & Hill, 3253.
Moulds for bricks with rough faces and sides, Harpin, 3300.
Bricks, blocks, tiles, &c. from slag or scoria, Caddick, 3467.
Dies or moulds for; lubricating same, Hamblet & Davies, 3536.
Moulding fuel for storing, &c., Marriott, 3634.
Bricks, blocks, tiles, &c. from slag or scoria, Caddick, 3640.
Forming seamless compressed traps, Lake (*Du Bois*), 3646.
Moulding flint and pebble into blocks, Carmody, 3729.
Moulding bricks, tiles, and pipes, Murray, 3768.
Articles in brick and tile trade, Boulton, 3980.
Bricks, artificial fuel, &c., Brownhill, 4015.
Plumbers' traps of clay under pressure, Lake (*Du Bois*), 4026.
Roofs in cement, in situ or in sections, Hyatt, 4063.
Moulding and pressing bricks and other forms, Emmet, 4141.
Bricks, tiles, and other articles, Craven & Craven, 4191.
Press for moulding glass, Perry & Perry, 4193.
Bricks, Beck, 4253.
Bricks and roofing and other tiles, Brewer (*Muchin*), 4434.

## Casting piles or batteries. *See* Electricity.

## Casts:

For imitating objects, works of art, &c., Loewenberg, 420.
Compounds for and moulding, Loewenberg, 420.

## Catches and door fasteners. *See* Locks.

## Cattle (vessels for and conveying on board ship):

Suspending in equipoise, Chomel, 659.
Vessels for carrying, Monckton, 1684.
Portable stalls and fittings for, Relph, 1962.
Double ship for conveying; fitting same, Egerton, 4549.

## Cattle-food. *See* Food for animals.

## Cattle-sheds. *See* Stables.

## Cattle-trucks. *See* Railway carriages.

## Ceilings. *See* Buildings.

## Cellars. *See* Buildings.

## Cement:

Treating peat, &c. for and making, Wilkinson, 60.
Recovering and treating refuse lime for use as a, Mackay, 91.
Plastic, for repairing, &c. gas retorts, &c., Sellars, 112.
Combined arrangement of kiln, Hall, 346.
Materials for and applying, Ross, 850.
Crushing or disintegrating, Milburn & Jackson, 963.
Preparing and mixing materials for, Milburn & Jackson, 963.
Compound or, for castings, Wirth (*Kreittmayr*), 959.
Fitting or keying, to metal surfaces, Burney, 1029.
Mills or crushers for mixing, Ward, 1187.
Composition or cement for dentistry, Labbé, 1238.
For preserving flowers, leaves, &c., Fenton, 1334.
Grinding, crushing, &c. by centrifugal force, Lucop, 1489.
For fireproofing buildings, Hyatt, 2015.
Heating kilns for burning by means of gases, Batchelar, 2239.
Filtering "slurry" in making "slip," Bowing, 2423.
Retort for calcining, Thompson & Ladelle, 3338.
Calcining lime and clay for hydraulic, Lyttle, 3579.
Cement kilns; car or waggon for same, Mumford, 3665.
Reducing or grinding, Morgan (*Sachsenberg & Brückner*), 3794.
Compound or material for making, Baggeley, 4067.
Burning gypsum for and making, Thomlinson & Salkeld, 4272.
Preparing, obtaining, or producing cements, Dresser, 4388.
Composition or mixture for improving, Ducournau, 4444.
Continuous kilns or ovens and heating same, Stone, 4451.

## Centrifugal machines:

Mounting and driving baskets of, Britten & Barron, 113.
For separating bodies from gases, Braun, 1278.
For grinding, crushing, pulverising, &c., Lucop, 1489.
Double self-acting, to filter and deodorise sewage, Pape, 1625

Centrifugal machines—*cont.*
Mounting, driving, and stopping baskets of, Shears, 2192.
For draining sugar sludge, &c., Fryer & Alliott, 2225.
Keeping drainings separate from, Fryer & Alliott, 2225.
Discharging substances from, Fryer & Alliott, 2225.
For filtering sewage, Odams & Blackburn, 2358.
Centrifugal cinder-sifter, Moody (*Sutton*), 2753.
For ventilating mines, &c., Rammell, 3587.
For purifying sugar, Duncan & Newlands, 4107.
For drying hops, Broadbent & Brown, 4271.

Ceramic wares. *See* Earthenware.

Cereals (dressing). *See* Grain and seeds.

Cesspools:
Trapping and ventilating, Banner, 2401.
Trap and grating, Clark (*White*), 4526.

Chaff-cutters:
Chaff engines, and feeding same, Maynard, 879.
General arrangement and combination of, Audinwood, 1936.
Elevators for raising cut chaff from, Chibnall, 2159.
Feeding, reversing, and stopping feed, Whitaker, 2676.
Combining with thrashing-machines, Perkins, 3490.

Chains; chain-cables:
Cutting and casting links for, and making, Handyside, 376.
Snap-hooks for and repairing, Johnson (*Nye*), 766.
Chain-cable stopper, Harfield, 911.
Flat, forming a stiff or rigid rod when run out, Owen, 960.
Making, both flexible and rigid, Owen & Binns, 1312.
For transmitting motive-power, Goubet & Monrocq, 1560.
Chain-cables, Lake (*Chamberlin*), 2516.
Taper chains for revolving shutters, Woodburne, 2752.
Welding links for, Lake (*Pittsburgh Chain, &c. Co.*), 2973.
Bucket chain links for dredgers, Simons & Brown, 3488.
Nippers or stoppers to indicate strain on cables, Thompson, 3932.
Disengaging and coupling hooks for, Meadows, 4228.
Pitch-chains for transmitting motion, Steele, 4359.

Chains (fancy). *See* Jewellery.

Chairs (furniture). *See* Furniture.

Chairs (railway). *See* Railways.

Chalk (crushing). *See* Grinding.

Chamber utensils. *See* Water-closets.

Chandeliers. *See* Lamps.

Charcoal; coke; carbon:
Carbonaceous material; making same, Weare & Isherwood, 326.
Artificial animal charcoal, Elcock, 807.
Obtaining coke, charcoal, and animal charcoal, Nicholas, 1116.
Carbonising coal, slack, peat, bones, wood, &c., Nicholas, 1116.
Obtaining coke from fæces, Newton (*Sindermann*), 1216.
Producing coke, &c., Stirling & Peacock, 1224.
Making coke from peat, Couradi (*Kesseler*), 1301.
Carbonising spent tan, Murdoch (*Hounsij*), 1397.
Carbon usable as, from spent tan, Murdoch (*Hounsij*), 1397.
Carbonising peat, wood, bones, &c., Hall & Bainbridge, 1460.
Pounding or pulverising, Hall & Bainbridge, 1460.
Furnaces for coking coal, Newton (*Carré*), 1634.
Carbon compound ("nicolline"), Nicoll, 1983.
Carbonaceous deodorising and filtering powder, Wilks, 1972.
Grinding charcoal and collecting the powder, Hyatt, 2307.
Producing ferruginous, animal, and peat charcoal, Lyttle, 2406.
Producing coke and revivifying charcoal, Lyttle, 2406.
Utilising fixed carbon in coke, Aitken & Young, 2725.
Carbonising sea-wrack, &c., Dufrené (*Glaisot frères*), 2915.
Inodorous furnaces for making animal black, Rabot, 2925.
Carbonising organic, earthy, or other matters, Robey, 2928.
Cooling carbonised substances, Robey, 2928.
Revivifying bone black, Clark (*Gandolfo & Jarboe*), 3030.
Bone black cooler & heater, Clark (*Gandolfo & Jarboe*), 3030.
Treating gases in process of coking or charring, Young, 3137.
Producing coke, Stirling & Peacock, 3436.
Using electricity in desulphurising coke, Prosser, 3466.
Coking substances, reburning charcoal and charring bones, [Lyttle, 3579.
Furnaces or kilns for carbonising, Johnson (*Huyard*), 3759.
Barrow for charcoal burners, Johnson (*Philippe*), 4157.

Charms. *See* Jewellery.

Charts and maps. *See* Maps.

Chasing or cutting screws. *See* Screws.

Chatelaines:
Arrangement of, Parkes, 4239.

Checking receipt of money. *See* Registering.

Cheese:
Implement for serving, Emanuel, 1289.

Chemical compounds (compressing). *See* Presses.

Chemical vessels:
Annealing glass for making, Monckton, 3307.
Protecting platinum, Prentice, 4392.

Chenille:
Shuttle motion for weaving, Smith & Smith, 2035.

Cheques and monetary documents:
Detachable limit or value stamps for, Cooper, 728.
Cheque with counterfoil and advice note, Sternberg, 3688.
Protective paper for, Ward, 3770.

Cheques for goods delivered. *See* Registering.

Cheques (printing and numbering). *See* Printing.

Chess-boards. *See* Games.

Chest-protectors. *See* Medical treatment.

Chests. *See* Boxes.

Chicory:
Heating kilns for drying, Wright & Saul, 4029.

Chiffoniers. *See* Furniture.

Chimney pieces. *See* Mantel-pieces.

Chimney tops, pots, and cowls. *See* Flues.

China-ware. *See* Earthenware.

Chisels:
Attaching handles to, Lee, 991.

Chloral. *See* Chloroform.

Chloride of sodium. *See* Salt.

Chlorine; chlorides:
Obtaining perchloride of iron, Mackay, 91.
Preparing and drying chlorides, Hargreaves, 147.
Forming chloride of ammonium, Tanner, 279.
Apparatus for making chlorine, Deacon, 832.
Obtaining, by dynamo-chemical means, Clark (*Lontin*), 473.
Chlorine and chloride of copper, Deacon, 906.
Forming chlorine and chloride of lime, Mease, 977.
Making blocks of chloride of potassium, Brock, 1502.
Using cinder from cupreous pyrites in making, Deacon, 1632.
Chlorine from salts of magnesia and copper, Deacon, 1909.
Purifying hydrochloric acid gas for making, Deacon, 2003.
Purifying hydrochloric acid for making, Hasenclever, 2109.
Obtaining chloride of ammonium, Kenyon, 2112.
Obtaining chloride of ammonia, Rylands & Swindells, 2266.
Forming chloride of lime, Riddell, 2316.
Chloride of zinc, Griffiths & Thompson (*Guion*), 2460.
Chlorides of lead, silver, and gold, Fitz-Gerald, 2481.
Calcining poor and other ores for obtaining, Barnard, 2512.
Converting sulphuret or insoluble ores into chlorides, Barnard, [2512.
Obtaining chlorine, Dow & Telfer, 3089.
Obtaining chlorine, Dow & Telfer, 3153.
Drying, caking, and breaking chloride, Robinson, 3358.
Drying and caking chlorides, Norman, 3559.
Apparatus for making chlorine, Deacon, 3920.

Chloroform; chloral:
Producing, by dynamo-chemical means, Clark (*Lontin*), 473.

Chocolate. *See* Cocoa.

Chopping or mincing. *See* Mincing.

Chronometers. *See* Clocks.

Chucks:
For rock drilling machines, Reynolds, 2287.
Adapting, for cutting & chasing bolts, screws, &c., Smith, 2546.
Adjustable, for punching metals, Galloway & Beckwith, 2881.

Churns; churning. *See also* Mixing.
Combined churn or freezer, Benson (*Redheffer*), 388.
Combined washing and churning machine, Kitchen, 1061.
Adapting washing apparatus for churning, Macfarlane, 1274.
Reversing motion for, Norris, 1315.
Actuating, Norris, 2940.
Regulating temperature of milk or cream in, De Vall, 2991
Reciprocating box churn, Green & Place, 3026.
Beating, churning, or mixing apparatus, Morier, 3834.

Cider. *See* Beverages.

Cigar and cigarette cases and tubes. *See* Tobacco.

Cigar-lights. *See* Matches.

Cigars and cigarettes. *See* Tobacco.

Cinder or slag. *See* Slag.

Cinder-sifters. *See* Sifting.

Circumferentors. *See* Mathematical instruments.

Cisterns; tanks; reservoirs; vats:
Material for packing joints of tanks, Fish, 9.
For containing petroleum, &c., Sinibaldi (*Sinibaldi*), 136.
For filtering sewage and polluted waters, Rydill, 150.
Lining brewers' squares and vats with glass, Cutler, 601.
Applying cements to and constructing, Ross, 850.
Tank filters, Burney, 1029.
Gauging supply of water from, Harries, 1367.
Traps for overflow pipes of, Middleton, 1506.
Indicating water level in reservoirs and, Nicholas, 1569.
Ventilating reservoirs and vats by suction, Corfield, 1572.
Vats of composite metals and wood, Walker, 1887.
Indicating water-level in, Nicholas, 2539.
For water-waste preventers, Hellyer, 2620.
Ventilating reservoirs, Lanyon, 2715.
Dye cisterns or vessels, Messrs. Marsden, 2845.
Indicating quantities drawn and remaining in, Newbold, 2964.
Punching or perforating tank plates, Heaton, 3040.
Duplex and triplicate construction of, Shanks, 3188.
Water-supply tanks of hardened glass, Newton, 3542.
Preventing loss of heat from tanks, Maw, 3699.
For storing, and distributing, &c. water, Clark (*Morrell*), 3739.
Floating tanks for storing grain, &c., Inglis (*Inglis*), 3965.
Tanks for life-saving raft-boats, Dunn, 4006.
Connections for withdrawing liquids from, Crowther, 4074.
Fermenting vats for brewing, Barlow (*Galland*), 4079.
Filtering reservoir, Morgan-Brown (*Midoz & Chanoit*), 4341.
Cramps for securing together tank plates, Ehrhardt, 4374.

Clamps; clamping machines:
For window sash or frame making, Gardner (*Abercrombie*), 1264.
For stretching tip and brim of hat bodies, Grimshaw, 2229.
Coupling holding, for hose, Morgan-Brown (*Morse*), 3894.
For use in brush-making, Cay, 4072.
Bevel, for arresting mine cages, &c. Clark (*Carlile & Elliott*), 4425.

Clarifying. *See* Filters.

Clasps. *See* Buckles.

Clasps (book). *See* Books.

Clays (crushing). *See* Grinding.

Cleaning boots and shoes. *See* Boots.

Cleaning composition (articles not defined):
For removing dirt, grease, &c. from metals, Hayhoe, 3614.
For domestic cleaning of all kinds, Hayhoe, 3614.

Cleaning grain and seeds. *See* Grain and seeds.

Cleaning knives and forks. *See* Knives.

Cleaning roots. *See* Roots (cleaning).

Cleansing or washing. *See* Washing.

Clinical thermometers. *See* Thermometers.

Clinometers:
Combined instrument with clinometer, &c. (The "Mensor"), [Henderson, 4363.

Clipping animals. *See* Shears.

Cloaks. *See* Shawls.

Clocks; watches; chronometers; time-keepers:
Bearings for vertical shafts of turret, Collingwood, 79.
Combined seal and watch key, Wilcox, 406.
Watch protector for fitting in vest pocket, Maclaren, 415.
Tell-tale or registering clocks, Theiler & Higgins, 423.
Composition for making watch-stands, Cole, 495.
Musical clocks, Weill & Harburg (*Grosclaude*), 528.
Illuminating church or turret, Challender, 1077.
Watchman's time detector, Wainwright, 1245.
Watch-protecting pocket, Porter, 1388.
Regulating the escapement of, Higham, 1407.
Spring sliding watch key, Dawson, 1517.
Combining watch keys with seals, lockets, &c., Dawson 1517.
Keyless going barrel watches, Whittaker, 1852.

Clocks; watches; chronometers, &c.—*cont.*
Device for regulating, Eaton, 1945.
German chronometer escapement, Petersen, 2052.
Attaching date and month indicators to, Southwood, 2140.
Independent and removable escapement, Brookes (*Fitt*), 2194.
Spring stop detent and regulator, Brookes (*Fitt*), 2194.
Cutting watchmakers' peg wood, Harmer & Wright, 2242.
Electric turret and other large, Conod, 2335.
Making, independent of external influences, Conod, 2335.
Machinery for making watch-cases, Thiery, 2367.
Astronomical and calendar, Adorno, 2382.
To show time at different places, Adorno, 2382.
Applying calendars to watch cases and, Fissthaler, 2363.
Indicating time in different localities, Lammers, 2874.
Escapements, Higham, 2917.
Electric clocks or clock work, Johnson (*Gondolo*), 2921.
General construction of watches, Lake (*Potter*), 2985.
Keyless watches of small size, Mills (*Jacot-Burmann*), 3115.
Making, &c. watch-key loops, Edmonds & Edmonds, 3136.
Annealing glass for watch cases, Monckton, 3307.
Combined illuminating-power gas-meter and clock, Sugg, 3334.
Air, water, and dust proof cases for, Jephcott, 3662.
Magnetised imitation watches, Welton, 3727.
Safety watch-pocket, Macdonald, 4084.
Indicating time by atmospheric pressure, &c., Stanley, 4130.
Applying electric bricquets or lighters to clocks, Lake (*Fas Tenac*), 4206.
Combined instrument with sundial, &c. (The "Mensor"), [Henderson, 4363.
Keyless watches, Muller (*Proellochs frères*), 4367.
Opening and closing cases for holding watches, Quin, 4403.
Astronomical and calendar, Adorno, 4498.
To shew time at different places, Adorno, 4498.

Clod-crushers. *See* Tilling.

Clogs. *See* Boots and shoes.

Cloth (punching). *See* Punching.

Cloth stretching machines. *See* Finishing.

Clothes brushes. *See* Brushes.

Clothes-horses. *See* Drying.

Cloths (piling). *See* Piling.

Clover seed (cleaning). *See* Grain and seeds.

Clutches; clutch-boxes:
Sliding, for knitting-machines, Clark (*Reed & Mulligan*), 115.
Substitute for, for gas-engine wheels, Clements, 367.
Safety, for mine cages, Vivian & Blackburn, 891.
For heddle operating mechanism, Benson (*Wicks*), 1139.
Spring, for transmitting motion, Goubet & Monroeq, 1560.
For steam excavators, Mills (*Chapman & Souther*), 1688.
Friction clutch pulleys for lifts, Clark (*Mason*), 2478.
Double, for feeding and driving machinery, Whitaker, 2676.
For wire-net making machines, Baker, 3566.
Friction, for feeding and transmitting motion, Imray, 3818.
Automatic rail, for carriages on steep inclines, Hunt, 3926.
Friction, for brick and other machines, Beck, 4253.

Coal (getting, breaking down, &c.). *See* Mining.

Coal-hods:
Adjustable covers for, Slater, 3391.

Coal-plates:
Using toughened glass in making, Hyatt, 2359.

Coating and covering cylinders and rollers:
Used in preparing cotton, &c., Edwards (*Edwards*), 357.
Milling machine rollers, Webster, 459.
Covering rollers of roller temples, Wolstencroft, 1406.
Lining cylinders of liquid meters, Jennings & Pocock, 1599.
Iron rollers used in spinning, Tice, 2275.
Rollers used in printing twine or cord, Waithman, 3109.
Used in printing, Johnson (*Le Tellier & Verstraet*), 3463.
For cloth-dressing machines, Morgan-Brown (*Giacomini*), 3889.
Drawing rollers with india-rubber, Chadwick, 4442.

Coating castings. *See* Casting plastic.

Coating cloth and fabrics:
Floor-cloths in preparing for printing, Nairn, 35.
Fabrics with fur, Crosby (*Kellogg*), 324.
Applying compositions to cloth, Hunstone & Thorpe, 1070.
Compound for, for book binding, &c., Greening, 2059.
Acid and waterproof compound for, Newton (*Requa*), 2074.
Or dressing wagon covers or sheets, Mowbray, 2736.
For producing imitation leather, wood, &c., Loewenberg, 3059.

**Coating metals:**

Thermo-electric apparatus for, Wollaston, 58.
Steel plates for cartridge cases and caps, Sanders, 330.
Composition of slag & borax, Lake (*Brownlow & Francis*), 340.
Cleaning and polishing tin or terne plates, Trottier, 488.
Electrotyping pickled iron plates, Terrell, 519.
Or tinning "black plates," Thomas & Terrell, 644.
Wire-netting, metallic fabrics or sheets, Moore, 831.
Driving tin-plate rollers, Richards & others, 935.
Springs of elastic horse rollers, Coleman, 986.
Wholly or partially submerged surfaces, Thomson, 1373.
Both sides of pans for pan water-closets, Buchan, 1662.
Facing type with nickel, &c., Bartlett & Murray, 1746.
Veneering metals for making casks, &c., Walker, 1887.
Electric-telegraph wires, &c., Field & Talling, 1938.
Tinning iron plates after shaping, Johnson (*Taylor*), 2022.
Compound for covering telegraph, &c. wires, Greening, 2059.
Using galvanizers' skimmings, Rylands & Swindells, 2286.
Jacket or covering for steam pipes, &c., Mewburn (*Gay*), 2360.
Covering cores of submarine cables, Lucas, 2633.
Composition for, before and after printing, Thacker, 2642.
Bearings for use in tin works, Jones, 2822.
Composition for submerged surfaces, Johnson (*Heyl*), 2972.
Magneto-electric apparatus for, Kilner, 2996.
Composition for coating iron wire, Kenyon, 3016.
Electro-plating gas-burners, Carter, 3102.
Cleaning, dusting, and polishing tin & terne plates, Griffiths, [& Griffiths, 3121.
Compound for submerged surfaces, Thomson & Connolly, 3138.
Utilising galvanizers' "flux skimmings," Jones, 3336.
Making argand gas-burners by electro-deposition, Jewitt [(*Rose*), 3440.
Metallic sheets with other metals or alloys, Johns, 3468.
Adjusting planishers for removing oxide, &c. in, Johns, 3468.
To prevent corrosion and oxidation, Clark (*Delarouzée*), 3486.
Substitute for tin-plate, Clark (*Delarouzée*), 3486.
Cleaning tin or terne plates, Griffiths & Lewis, 3573.
Serving telegraph cables, Phillips & Johnson, 3798.
Thermo-regulators for use in electro-gilding and, Mori, 3904.
Finishing tin and terne plates, Nurse, 3970.
Pickling and treating black plates, Nurse, 3971.
Light submarine cables, Henley, 4115.
Electro-deposition process of tinning, Blewitt, 4302.
Platinum vessels for chemical operations, Prentice, 4392.
Pickling sheet iron plates, Morris & others, 4504.
Electro-coppering calico printers' rollers, Wilde, 4515.

**Coating miscellaneous substances:**

In making artificial leather or cloth, Block, 718.
Paper, in mounting on metal plates, Tucker, 1734.
Leatherette or artificial leather, Pope, 4258.

**Coating or covering steam-boilers:**

Quilted fabric for, Gedge (*Gaudefroy*), 434.
With mica, &c. to prevent radiation, Seccombe & Talling, 563.
Utilising slag for, Dähne, 1052.
Non-conducting composition for, Leadbetter, 1685.
Wash for non-conducting compositions, Leadbetter, 1685.
Method of lagging or, Beamish & Mason, 3065.

**Coating ships' bottoms.** *See* Ships' bottoms.

**Coats.** *See* Wearing-apparel.

**Cocks; taps; faucets:** *See also* Valves:

Regulator steam-cock for applying breaks, Clark, 80.
Taps for fitting to bottle necks, Howitt & others, 103.
For drawing off oil, &c., Sinibaldi (*Sinibaldi*), 136.
Equilibrium draw-off, for high pressures, Johnson, 156.
Valves for fire-cocks, Blakeborough & Beck, 227.
Tap stopper for bottles, Jones & Davies, 248.
Ball and intermittent for water, steam, &c., Chameroy, 417.
Connecting, to bottoms and sides of ships, Spence, 427.
Valves for faucets, Wirth (*Knaust*), 469.
Arranging and actuating taps, Stuart, 442.
Test cocks for steam-boilers, Bailey, 539.
Draw-off cocks for domestic boilers, Bailey, 539.
Relief, for pneumatic railway breaks, Steel, 623.
Attaching, to mains under pressure, Bates, 660.
Operating water-closet supply cocks, Storer (*Cooper*), 693.
Operating, Defty, 760.
For gas, water, and other fluids, Carey & Porter, 902.
Applying a key boss to wood taps; making taps, Edwards, 961.
Lathes for cutting the plugs of stop-cocks, Low, 993.
For drawing measured quantities of liquids, Lillie, 1333.
For thermometrical apparatus, Diplock, 1424.
Drawing gaseous oils or other fluids, Woods, 1492.
For decanting or drawing off liquids, Goddard, 1581.
Steam, ball, pet & stop-cocks, spirit & other taps, Haigh, 1621.
Providing, with india-rubber ball valves, Haigh, 1621.
Stop and blow-off, for steam fire-engines, Wirth (*Knaust*), 1641.
Waste preventing stop-cocks & crane neck taps, Gordon, 1729.
Various forms of screw, lever, stop, &c., Brookes (*Farjon*), 1994.
Collapsible tube devices serving as, Brookes (*Farjon*), 1994.
Self-adjusting liquid extractors, Ell, 2027.

**Cocks, taps; faucets**—*cont.*

Water-waste preventing "screw taps," Dykes & Scott, 2030.
Protecting, from injury in frosty weather, Maxwell, 2131.
Tap for use with beer-engines, Butterworth, 2238.
For passing air into casks, &c., while drawing, Randall, 2252.
Ball float arrangement for drawing off liquids, Macdonald, 2348.
Valve cocks for steam-engines, Newton (*Molard*), 2353.
Two-way taps for aërated liquid bottles, Thom, 2446.
Faucets for casting apparatus, Haseltine (*Grasser*), 2467.
Two-way tap for hose or tube nozzles, Tweeddale, 2597.
For water-waste preventers, Hellyer, 2620.
Registering liquids drawn from taps, Rimington, 2650.
Double slide box cocks for water-works, &c., Packer, 2888.
Protecting the surface of the packing of, Mallinson, 2986.
Increasing efficiency of valve, Dubois, 2989.
Applying valves to high-pressure water taps, Beach, 2994.
Float or ball cocks, Shanks, 3188.
For coal gas carburetting apparatus, Weston, 3301.
Inverted cup or basin like floats for ball, Phillips, 3394.
Gas-testing cock, Walker (*Drory*), 3398.
Locking flanges and fastenings for, Newton, 3542.
Vulcanite for making cocks for acids, MacLellan, 3578.
Safety tap for drawing off petroleum, &c., Howes, 3583.
Or water keys for boiler feeders, Newton (*Ikonnikoff*), 3590.
For water filters, Foster, 3671.
Boss with stop valve for taps and ball cocks, Tillyer, 3813.
For cooling and refrigerating machines, Stanley, 3907.
Self-closing bib-taps or cocks and other, Storey & Storey, 3918.
For mixing beers in drawing same, Ashton, 4008.
Drawing off malt liquors, oils, &c., Crowther, 4074.
Taps for steam and other fluids, Firth, 4078.
Three-way, for steam-engines, Thompson, 4080.
Drawing beer, &c. from barrels without tilting, Hill, 4111.
Sleeved taps for bottling apparatus, Rendle, 4224.
Closing detail of stop-cocks; opening same, Anderson, 4314.
Tap or bottle cap, Saul, 4358.
Tap for filling bottles, &c., Warrington & Harwood, 4422.

**Cocoa; chocolate:**

Crushing and reducing cocoa to powder, Cole, 110.
Grinding, and collecting same in form of dust, Hyatt, 2307.
Using a decoction of chocolate in making biscuits, Hart, 3434.

**Coffee; coffee-pots:**

Metallic handles for pots, Garfield, 664.
Removing pulp from berries of, Lidgerwood, 1103.
Using a decoction of, in making biscuits, Hart, 1219.
Lids and spouts for coffee-pots, Topham & Snushall, 1821.
Tubular screw-apparatus for roasting, Walker, 1886.
Roasting, in bran, &c. to absorb aroma, Hyatt, 2397.
Grinding, and collecting same in form of dust, Hyatt, 2307.
Water-wheel, &c. for driving coffee-mills, Lake (*Lane*), 2615.
Annealing glass for coffee-pots, Monckton, 2307.
Using a decoction of, in making biscuits, Hart, 3434.
Hulling, cleaning, polishing, &c., Lake (*Squier*), 3929.

**Coffins:**

Ornamenting coffin furniture and, Kendrick, 31.
Making, of wicker or basket work on wood frames, Kirby, 503.
Making and ornamenting plates for, Humpage, 917.
Of more perishable matter than wood, Larkman & Diprose, 2788.
A "necropolis earth to earth coffin," Larkman & Diprose, 2788.
Of toughened glass; fracturing same, Warren, 2859.
Wooden cases and caskets in lieu of ordinary, Jones, 4175.

**Coiling or reeling paper, &c.** *See* Reeling.

**Coiling ropes upon drums.** *See* Ropes.

**Coins:**

White metallic alloy for making, Clark (*Le Marquand*), 815.
Electric counterfeit coin detectors, Stearn, 1399.
Moulding discs of metal for coining, Varley, 1635.

**Coke.** *See* Charcoal.

**Collars (dress):**

Creasing, &c. fabrics for, Rath & Scantlebury, 232.
Ornamental material for, Cadman, 2580.

**Collars (dog).** *See* Dogs.

**Collars (horse).** *See* Harness.

**Coloring matters or dyes.** *See* Dyes.

**Coloring or dyeing wood.** *See* Wood.

**Coloring pile fabrics.** *See* Dyeing.

**Color-printing.** *See* Printing.

**Colors or paints.** *See* Paints.

**Colts (breaking in).** *See* Harness.

**Columns; pillars; pedestals:**

Portable apparatus for drilling flanges of, Enoch, 190.
Applying cements to and constructing, Ross, 850.
Combining glass, &c. for forming and making, D'Humy, 1710.
Forming pillars of hollow concrete boxes, Sellars, 2121.
Tiles for forming hollow piers or, Hyatt, 2350.
System of making moulds for moulding, McNish, 3006.
Emery wheels for shaping and dressing, Young & Brown, 3887.
Glazed columns, pilasters, and capitals, Lipscombe, 4055.
Compound or material for; glaze for same, Baggeley, 4067.
Cutting, dressing, or fluting marble, &c., Dunlop & Rec, 4120.
Casting flanged, Roberts, 4278.

**Combing fibres.** *See* Spinning (carding).

**Combs; curry-combs:**

Duplex, for the hair, Copland (*Britton*), 1097.
Long or combination, for the hair, Poppenhusen, 2334.
Applying magnets to curry-combs, Lyon, 3382.

**Comfits.** *See* Confectionery.

**Commodes.** *See* Water-closets.

**Communicating or signalling.** *See* Signals.

**Communicating with stranded vessels.** *See* Life-buoys.

**Compasses (drawing).** *See* Mathematical.

**Compasses (magnetic):**

Suspending ships', in equipoise, Chomel, 659.
Combining, with sticks, staves, whips, &c., Hosking, 1379.
Preventing deviation in mariners', Atkin, 1415.
General construction of liquid, Baker, 1577.
Needles for, and adjusting same, Bousfield (*Iles*), 2300.
An "unmistakable true north compass," Symons, 3293.
Instrument for verifying indications of, McGregor, 3901.
Combining prismatic, with other instruments (The "Mensor"), Henderson, 4363.

**Composing type.** *See* Printing.

**Compositions for road-making.** *See* Roads.

**Compressed air engines.** *See* Air and gas engines.

**Compressing air and gases.** *See* Air and gases.

**Compressing yarn.** *See* Threads and yarns.

**Concertinas.** *See* Musical instruments.

**Concrete:**

Machine for making and mixing, Milburn & Jackson, 933.
Forming plastic and marble plastic, Ducournau, 4444.
For foot-paths, covering terraces, &c., Ducournau, 4444.
Mixing, Degener (*Weiler*), 4560.

**Condenser carding-engines.** *See* Spinning.

**Condensers; condensing fumes and vapours:**

For distilling apparatus, Dudgeon, 83.
Steam from furnace gases and vapors of metals, Lyttle, 105.
Surplus steam in marine boilers, Johnson & Allan, 191.
Surface, for marine and other steam-engines, Perkins, 224.
Joints for securing tubes in plates of, Atherton, 396.
For condensing steam or vapours, Boulton, 694.
Condensing mercurial vapours, &c., Newton (*Berrens*), 894.
Bunsen water vacuum pump for, Morgan-Brown (*Hagemann*) [964.
Valves for, used in gas-works, Walker, 1058.
Exhauster for rotary engines, Barlow (*Deck*), 1277.
Steam in heating boilers, Budge (*Miralles*), 1403.
Tubular screw-apparatus for, Walker, 1886.
For traction and other engines, Alexander (*Rowan*), 2154.
For steam tram-cars to prevent noise, Barclay, 2201.
Regulating injection water to steam-engine, Holt, 2207.
Facilitating cleaning, &c. of surface, Mills, 2250.
Spray surface, for traction & other steam-engines, Norfolk, 2258.
For condensing ammonia in ice-making, &c., Coughlin, 2413.
Exhaust steam in engines without cold water, Packman, 2574.
Condensing water in distilling machinery, Normandy, 2581.
Sulphuric acid vapours in refrigerating, Pictet, 2727.
For gas works, Anderson, 2843.
In making sulphuric acid, Sauvée (*Faure & Kessler*), 2897.
In melting gums for varnish, &c., Spence (*Lefebvre & Co.*), 3164.
Steam-engine surface, Porteous & Bruce, 3264.
Surface, for tramway locomotives, &c., Gendebien, 3348.
For stationary and other steam-engines, Plunkett 3408
For fruit, vegetable and other driers, Oakes (*Reynolds*), 3443.
Surface; packing tubes of same, Johnson (*Normand*), 3516.
Maintaining vacuum in surface, Johnson (*Normand*), 3516.
Shower for steam, Sault (*Ransom Syphon Condenser Co.*). [3543.

**Condensers; condensing fumes, &c.—*cont.***

Breaking vacuum in steam-engine, Galsworthy, 3641.
For purifying gases in carbonising sewage, Slater, 3698.
Abstracting heat from, and preventing access of heat to, Maw, [3825.
Spiral chambered condenser, Maw, 3899.
Bottle-brush and drip ledge for gas, Cleland, 3704.
For steam pumping engines, Davies & Wilson, 3842.
Condensing steam in steam-pumps, Pearn & Pearn, 3875.
For cooling and refrigerating machines, Stanley, 3907.
Ejector condensers, Jackson & Jackson, 3928.
For tramway and road locomotives, Hughes & Coltman, 4023.
For use in ice-making, Wheeler (*Coughlin*), 4054.
For horizontal compound steam-engines, Thompson, 4090.
Vapours of volatile liquids in waterproofing, Clamond, 4174.
Using hot compressed gas for condensing, Preiswerk, 4324.
Surface, for steam-engines, Davie, 4440.
For obtaining fresh water from salt water, &c., Davie, 4440.
Cooling water for condensing steam, Cunningham, 4441.

**Condiment receptacles.** *See* Salt-cellars.

**Condiments.** *See* Preserving food.

**Confectionery:**

Making ice-creams, fruit-ices, &c., Benson (*Redhaffer*), 399.
Combined revolving pan and engine for making, Brown, 549.
Driving and heating pans used in making, Brown, 549.
Combining meat extract with buns, cakes, &c., Curlender, 1376.
Using carbonic acid gas from breweries for, Walker, 1886.
Aerotherm portable oven, Bonneville (*Lesobre*), 1937.
Using flour of maize in pastry, Clark (*Chiozza*), 2097.
Magnetic sweetmeats & ginger bread, Darlow & Fairfax, 2162.
Magnetic lozenges and jujubes, Darlow & Fairfax, 2162.
Making "motto comfits" and "bead comfits," Coombs, 2170.
Machinery for making lozenges, medals, and like, Crosby, 2644.
Printing or stamping & cutting out lozenges, &c., Crosby, 2644.
Making "solid jams" to be used as sweetmeats, Moss, 3057.

**Conformators.** *See* Measures.

**Congealers.** *See* Refrigerators.

**Conservatories.** *See* Greenhouses.

**Consuming smoke.** *See* Smoke.

**Controlling horses and oxen.** *See* Harness.

**Converting metals.** *See* Smelting.

**Converting motions.** *See* Propelling machinery.

**Cooking; culinary apparatus and utensils:**

Fuel saving "Victoria cooking stove," Tomkins, 114.
Rotating apparatus for use in, Brook & Wilson, 344.
Gas-ovens, gas-gridirons, & boilers for, Peacock & Rudkin, 398.
Gas-cooking and boiling apparatus, Peacock & Rudkin, 500.
Fuel-saving kitchen range, Lillie, 606.
Preventing waste of gas used for, Loebl, 614.
Stove for heating kitchen ranges, Crichley, 859.
Gas-stove for boiling and heating, Southby, 1210.
Petroleum or hydro-carbon stoves for, Wright, 1369.
Fire-bars and coal-saving backs for kitcheners, Dyer, 1651.
Hot-air apparatus for, Landau, 1674.
Portable fire-stove and cooking vessel, Dann (*Gervais*), 1741.
Fire-pots and other utensils for, Dann (*Gervais*), 1741.
Saucepan lids or covers, Topham & Snushall, 1821.
Aerotherm portable oven, Bonneville (*Lesobre*), 1937.
Using flour of maize in soups, Clark (*Chiozza*), 2097.
Apparatus for extracting juice from meat, Wire & Gard, 2125.
Through agency of heat and a food absorbent, Hyatt, 2357.
Constructing and heating hearths of ranges for, Day, 2357.
Gas-stove for, Holmes (*Sharp*), 2387.
Burners for petroleum cooking apparatus, Huch, 2394.
Convertible open or close stoves, Davey & Hutchison, 2462.
Glass and earthenware jars for, De la Perrelle (*Guérin*), 2657.
Carrying off vapours, &c. in process of, Lanyon, 2715.
Petroleum stove for, Lachmund, 2778.
Boiling eggs without shell, &c., Newton (*Helie*), 2936.
Close or open kitchen ranges, Redmayne, 3200.
Annealing glass for cooking utensils, Monckton, 3307.
An "automatic dutch-oven," Lake (*Dejey*), 3530.
Fitting air-heating chambers to stoves for, Walker, 3732.
Generating gas in and for cooking stoves, Jackson, 3541.
American stoves; heating ovens of same, Dobbie & Forbes, 3917.
Glaze for cooking utensils, Baggeley, 4067.
Meats, &c. for preserving in jars, Thompson (*Leuchtenrath*). [4089.
Oil-lamp stoves for, Rippingille, 4137.
By hot compressed gas from boiler furnaces, Preiswerk, 4324.
Oil-lamp for heating cooking stoves, Robins, 4437.
Fire-basket or grate-box for kitchen stoves, Jensen (*Pütz*), 4523.

**Cooling & ventilating buildings.** *See* Ventilating.

Cooling bone-black. *See* Charcoal.

Cooling cylinders and pistons:
Of gas and petroleum engines, Abel (*Daimler*), 71.
Of hot-gas and steam-engines, Boulton, 96.
Of air compressors, Richardson & Ball, 564.
Of air compressing apparatus, Alexander, 674.
Of pneumatic hammers, Sholl, 2524.

Cooling furnaces:
Necks or throats of regenerative gas, Siemens, 43.
Rotating annular beds of puddling, Schofield, 511.
Rotary puddling, Jones & Jones, 956.
Bridge of tank glass furnaces, Cowper, 3350.

Cooling greenhouses, &c. *See* Greenhouses.

Cooling liquids. *See* Refrigerators.

Coops and poultry houses. *See* Houses.

Copings. *See* Buildings.

Copper. *See* Smelting.

Coppers. *See* Boilers (miscellaneous).

Coprolites (washing). *See* Washing minerals.

Cops (forming). *See* Winding. Spinning.

Cop-tubes. *See* Bobbins.

Copying; copying-presses:
Writing and drawing copying pencil, Von Faber, 178.
Pencil for, in lieu of ink, Flachfeld (*Hollerbusch*), 440.
Copying ink pencil, Vollmer (*Schulte*), 460.
Copying ink pencils, Wirth (*Swanhäusser*), 1236.
Drawings, designs, patterns, manuscripts, Dadswell, 1571.
Letters, &c. on strong paper, Fellows, 2137.
Using set-off of presses as printing surface, Fellows, 2137.
Damping copying paper, Bertram, 2375.
Correspondents' compendium for, Wrigley, 2397.
Portable roller damper and copying press, Wrigley, 2397.
Press for, Lake (*Oakley & Quarrill*), 4514.
Screw letter-copying press, Barton, 4547.

Coral:
Electric submerged lamp for fishing, Chauvin & others, 2410.
Compound for making artificial, Thayer (*Smith*), 2513.

Cordage. *See* Ropes.

Cork; corks; bungs:
Applying, in making artificial leather or cloth, Block, 718.
Automatic cork assorting machine, Bussey, 1047.
Cutting corks, and tongs for use in same, Hald (*Boethius*), 1390.
Using, as quilted fabric filling, Ritchie & Ritchie, 1422.
Compound corks and bungs, Tongue (*Montaugé & Brandely*), [1477.
Employing, for external ridges of boats, Colwell, 1708.
Expanding bung for casks, &c., Eli, 2027.
Cork fabric or foundation for cards, Grether, 3249.
Machine for cutting, Warrington & Harwood, 3802.
Sorting or separating corks and cork squares, Howard, 3830.

Corking bottles. *See* Bottle-stoppers.

Cork-screws:
With backward and forward motion, Wolverson, 763.
Locking device for continuous rotating, Bateman, 919.
Combined steel and, Clark (*Taft*), 1153.
Auger shaped implement for extracting corks, Wilson, 1298.
Making from a single piece of wire, Haseltine (*Clough*), 1640.
Combination implement, Elliott (*Converse*), 1773.
Lever, Burgess, 2093.

Cornices. *See* Mouldings.

Corn-mills. *See* Grinding corn.

Corns (curing). *See* Medical treatment.

Corpses:
Disposing of and incinerating the dead, Hyatt, 2307.
Consolidating ashes of, into memorial shapes, &c., Hyatt, 2307.
Absorbing noxious gases evolved by, Lyttle, 2406.

Corrosion (preventing). *See* Oxidation.

Corrosive liquids:
Raising or removing, Colebrook, 261.

Corsets. *See* Stays.

Corves (miners'). *See* Mining.

Cosmetics; toilet creams:
Combining terebene with, Cleaver, 4248.
Making "terebene cream" and "cosmetic," Cleaver, 4335.

Costumes for swimming. *See* Swimming.

Cots and bedsteads. *See* Furniture.

Cotton (silicate). *See* Slag.

Cotton (spinning). *See* Spinning.

Cotton-gins. *See* Spinning (batting).

Couches and sofas. *See* Furniture.

Cough-drops. *See* Medicines.

Counters and shop fittings:
Adjustable covers for, Slater, 3391.

Counting. *See* Registering.

Coupling driving belts. *See* Bands.

Coupling or joining pipes. *See* Pipes.

Coupling railway carriages. *See* Railway carriages.

Coupling signals. *See* Signals.

Couplings for shafts. *See* Shafts.

Covering rents in ships. *See* Ships (stopping, &c.).

Coverings for the head. *See* Hats.

Coverlets. *See* Upholstery.

Covers for dishes. *See* Dishes.

Cowls. *See* Flues. Ventilating.

Crabs. *See* Hoists.

Cramps:
Rigid, for use in boring and drilling metals, Enoch, 190.
Floor, sash, and bench, Hodson, 371.
For use in tying scaffolding, loading timber, &c., Matthews, [2966.
For securing flanges and other joints, Ehrhardt, 4374.
For joining travelling belts or webs, &c., Ehrhardt, 4374.

Cranes. *See* Hoists.

Cranks:
Turning crank necks or sweeps of loom shafts, Haggas, 285.
Making cranked shafts or axles by bending, Clarke, 854.
Crank arms for looms, Booth & Banks, 1649.
Arranging crank studs on driving wheels, Barclay, 2201.
Cranked shafts and axles, Reynolds, 2323.
Cranked shafts and axles, Reynolds, 2399.
Crank arms for looms, &c., Shuttleworth, 3160.
Crank sweeps of loom shafts, Butterworth & others 3868.

Craping or crimping. *See* Goffering.

Crates:
For holding and transporting bottles, Wilson, 1329.
Folding, for merchandise, Blake & others, 4014.
For holding bottles of various sizes, Keith, 4093.

Cravats. *See* Neckties.

Creams (toilet). *See* Cosmetics.

Cremating or incinerating corpses. *See* Corpses.

Cricket-bats. *See* Games.

Crimping. *See* Goffering.

Crinolines. *See* Dresses.

Crochet-hooks. *See* Needles.

Crockery-ware. *See* Earthenware.

Crossings (railway). *See* Railways.

Crucibles; melting pots:
Forming and shaping, from plastic material, Morgan, 1149.
Composition for making pots, Haseltine (*Grasser*), 2467.
Increasing heat under, Ratcliff & Ratcliff, 3155.

Crumb-brushes. *See* Brushes.

Crushing or grinding. *See* Grinding.

**Cryptographs:**

For writing and reading in cyphers, Haseltine (*Norris*), 1163.
System of & receivers for, Morgan-Brown (*Sommerfeldt & Nissen*), 2149.

**Crystals:**

Combining, with magnets for medical use, Whiting, 3345.

**Cucumbers (slicing).** *See* Preserving food.

**Cuffs:**

Ornamental material for, Cadman, 2580.

**Culinary utensils.** *See* Cooking.

**Cultivating land.** *See* Tilling.

**Cultivating oysters.** *See* Oysters.

**Cupboards.** *See* Furniture.

**Cupola furnaces.** *See* Furnaces (metallurgical).

**Cups and saucers.** *See* Drinking vessels.

**Current indicators:**

Deep sea and other, Moore, 990.
Applying electricity to, Pastorelli, 3706.

**Curry-combs.** *See* Combs.

**Curtains; curtain blinds.** *See* Upholstery.

**Cutlery (grinding).** *See* Grinding, sharpening.

**Cutlery (table).** *See* Knives.

**Cutting, planing, and shearing metals:**

Wire, for umbrella ribs and stretchers, Holland (*Myers*), 34.
Shears for cutting horse-shoe lengths, Lake (*Russell*), 48.
Steel lengths in making shuttle springs, Pye, 70.
Rivet blanks from a coil of wire, Lake (*Bray*), 100.
Shearing machine; operating same, Nussey & Leachman, 139.
Chisel point of cut nails, Rogers (*Mullholland*), 161.
Spike blanks and pointing same, Lake (*Whittemore*), 163.
Lengths of paragon and other wire, Worrall & Worrall, 189.
Links for chains or cables, Handyside, 376.
Six or eight sided screw nut blanks, Halley, 444.
Reed frames for harmoniums, &c., Gouverneur, 453.
Wire, in making snap-hooks, &c., Johnson (*Nye*), 767.
Blank nuts, bolts, spikes, rivets, &c., Whittaker, 992.
Applying grinding discs to planing machines, Butler, 1177.
Making tools for planing and surfacing, Lynam, 1192.
And planing carding-engine flats, Leigh & Leigh, 1271.
Heated bars for nuts or washers, Rogers, 1594.
Hydraulic machinery, for planing boiler plates, Brown, 1607.
Grinding knives of shearing machines, Handyside, 1702.
Slots in needles, Oppenheimer (*Holland*), 1707.
Planing radius links and like curved surfaces, Smith, 1916.
Toothed gearing by spiral cutters, Turner, 1929.
Off pieces of pipe, in screw-threading same, Gee (*Allin*), 1973.
Blanks for steel pens and other articles; tools, Nelson, 1990.
Wire blanks for wood screws, Frearson, 2005.
Iron plates to shape before tinning, Johnson (*Taylor*), 2022.
Circular shears for, for wire drawing, Laveissiere, 2297.
Slotting machines, Newton (*Pihet*), 2452.
Nut blanks from bars, Jensen (*Gustafson*), 2475.
Automatic feed for nail cutting machines, Hutton, 2479.
Conical, spur, and other toothed wheels, Grube, 2507.
Circular flat rings or washers from plates, Smith, 2537.
Annular grooves, recesses, discs or flanges, Smith, 2537.
Bolts, studs, screws, &c., Smith, 2543.
Pieces for forming nails, Bates & Thornton, 2612.
Hand apparatus and tools for, Beynon, 3113.
Dividing apparatus for toothed wheels, Scott, 3204.
Reducing friction in planing machine beds, Lillie, 3355.
Nail-cutting machines, Southwood, 3439.
Nail-cutting machine, Haseltine (*Wickersham*), 3444.
Planing radius links and like curved surfaces, Smith, 3560.
Compensating gear for planing machines, Smith, 3560.
Planing machine girders or cross slides, Beverley, 3694.
Plates or strips of steel for springs, Holmes (*Porter*), 3781.
Controlling and adjusting strain in shearing, MacColl, 3814.
Bar ends longitudinally; tools for same, Amos, 3985.
Cutting off screw stay ends of steam-boilers, Allan, 4058.
Blanks for nuts, Clark (*Marland*), 4139.
Wire for pins used in combs, gills, &c., Harding & Harding, 4178.
Tool-holders and cutting tools for, New & others, 4273.
Wire, for making umbrella ribs, Smith & Packer, 4306.
Shaping metals, Lowry, 4540.

**Cutting, sawing, and planing wood:**

Planes for cutting blind slats, Poole (*Lowe*), 29.
Hollowing and backing cask staves, Thornley & Buxton, 188.
Plane irons, Manning, 268.

**Cutting, sawing, and planing wood—cont.**

Circular and band saw benches or machines, Reynolds, 764.
Planing machine, Haseltine (*Toppan & others*), 1060.
Splitting or, for fire-lighters and fire-wood, Noad, 1057.
Circular saw or knife machine for, Clark (*Olivier*), 1108.
Cutting wood into small pieces for paper pulp, Rocco, 1155.
Convertible circular saw machine, Simon, 1293.
Automatic splint cutter, Haseltine (*Young*), 1317.
Machine for working jigger saws and log frames, Brakell, 1396.
Edges of wooden cask heads, Hodgson, 1405.
Edging and centring cask staves, Thornley & Buxton, 1519.
Tables for fret-cutting machines, Harrison & Mabson, 1575.
And shaping staves for casks, Clark (*Deroide*), 1588.
Machine for conical moulding, Winkler & Zeidler, 1691.
Splitting, &c. wood for fire-lighters, &c., Pinchbeck, 1696.
Grooving wood for making fire-lighters, Sawyer, 1718.
Planing or smoothing reels, Haseltine (*Lyman*), 1781.
Tenoning or relishing, Gardner (*Abercrombie*), 1788.
Mitreing, tenoning, mortising, & blind punching, Avis, 1854.
Fire-wood & short lengths for fires, Newcomb & Newcomb, 1898.
Mitre cutting apparatus, Michelmore & Reap, 2236.
Watchmakers' pegs, butchers' skewers, &c.; tools or apparatus for same, Harmer & Wright, 2242.
Slotting holes in fence posts, McGillivray, 2246.
For fire-lighters, Holmes, 2335.
Buttons, bottle tops and shields, counters, &c., Mincher, 2449.
Mortising machines, Newton (*Pihet*), 2452.
Wooden conical, spur, and other toothed wheels, Grube, 2507.
Revolving tool for surfacing and, Smith, 2537.
Scribing or marking timber for mortices, &c., Stafford & Hilton, [2559.
Wedge shaped tool for splitting or cleaving, Rowley, 2645.
And shaping staves, Hewitt & Heys, 2726.
Planing machine with adjustable table, Onken & Ritter, 2871.
Match splints; knives or cutters for same, De Bowens, 2960.
Moulding wood cores for beadings, frames, &c., Larard, 3051.
Hand apparatus and tools for, Beynon, 3113.
Splitting and, into small sticks, Holmes & Hopkinson, 3114.
Rotary cutters for ornamenting and, Clissold, 3190.
Staves for casks, tubs, &c., Johnson (*Pile*), 3224.
Mortising, grooving, or trenching, Atkinson, 3312.
Mortising tool and compound slide-rest, Atkinson, 3312.
Jointing staves, Ransome, 3395.
Forming clog blocks and clog soles, Robinson & Smith, 3442.
Mounting and actuating cutters, Johnson (*Blake*), 3676.
Gutters or troughs in wood and utilising centre or core for ladder sides, &c., Bradbury & Bradbury, 3800.
Mouldings or cornices, Bradbury & Bradbury, 3800.
Feed clutch for sawing and planing machines, Imray, 3818.
Hand mortising machines, Steel & Steel, 3837.
Mortising; setting out mortice holes; bits, Carter, 4195.
Treads and risers of stair cases; bits for same, Carter, 4195.
Tenoning; moulding tools, Carter, 4195.
Design producer for fret-cutting machines, Howie, 4300.
Fastening for mortise and tenon joints, Craig & Miller, 4538.

**Cutting and dressing stone, slate, and marble:**

Percussive sawing machinery, Payton & Holmes, 343.
Circular cutters for planing, turning, and, Brunton, 702.
Grooving blocks or slabs of slate for paving, &c., Elwes, 1236.
Machine for chipping or dressing, Brakell, 1393.
Diamond tool for planing or shaping, Young & Thomson, 1969.
Working saws for, Payton & Holmes, 1567.
Cutters for & fixing same in holders or tools for, Munro, 1712.
Millstone dressing machine, Whittingham, 1829.
Self-grinding stone dressing machine, Young, 1880.
Tools and machinery for, Dunlop & Ree, 1990.
Tools, tool-holders, and machinery for, Adamson, 2071.
Hand apparatus and tools for working and, Beynon, 3113.
Millstone dressing tool or apparatus, Beynon, 3113.
Giving rolling motion to and making cutters, Tweeddale, 3192.
Working tables of slate-working machinery, De Winton, 3453.
Diamond machine for dressing, &c., stone, marble, &c., Henderson, 3561.
Securing diamonds in holders for, Lake (*Brasch*), 3677.
Fixing cutters in holders or tools used in, Munro, 3764.
Applying consolidated emery for, Young & Brown, 3867.
Machines, tools, and tool-holders for, Dunlop & Ree, 4122.
Fixing or holding stones in machines for, Dunlop & Ree, 4122.
Operating tools in working stone, Brearley & Marsden, 4173.

**Cutting and pulping roots.** *See* Root-pulpers.

**Cutting button-holes.** *See* Button-holes.

**Cutting clay:**

Into bricks, tiles, and pipes, Murray, 3766.

**Cutting cloth, linen, and other fabrics:**

Device for marking and bias cutting velvets, &c., Cramp, 374.
Pipings, ruffles, folds, bands, flounces, &c., Cramp, 374.
Cloth for collars, cuffs, &c., Harrison & Mabson, 1573.
Combining cutters, with sewing machines, Searle & Cook, 2926.
Paper lined cloth for sugar-loaf covers, &c., Smieton, 3664.

Cutting cork. *See* Cork.

Cutting down trees. *See* Plants.

Cutting flocks or mungo. *See* Rags.

Cutting grass. *See* Garden. Reaping.

Cutting healds (waste or discarded). *See* Weaving.

Cutting hedges. *See* Plants.

Cutting ice into flakes. *See* Refrigerators.

Cutting leather. *See* Leather.

Cutting oil or other seed cakes. *See* Oil-cake.

Cutting or boring. *See* Boring.

Cutting or excavating. *See* Excavating.

Cutting or getting coal. *See* Mining.

Cutting or slicing fruit, &c. *See* Preserving food.

Cutting out biscuits. *See* Bread.

Cutting out lozenges, &c. *See* Confectionery.

Cutting paper:
Arranging and constructing machines for, Kritch, 464.
In feeding same to printing machines, Clinker, 513.
Into sheets, after printing, Mac Donald & Calverley, 611.
Edges of books, paper or cards, Ritchie, 1034.
Photographic sensitized paper, Clark (*Lambert*), 1825.
By an epicycloidal motion, Newton (*Campbell*), 2679.
In process of printing, Anthony & Taylor, 3056.
In printing machines, Conquest (*Tucker*), 3105.
Paper-hangings or wall papers, Youard, 4340.
Postage and other stamps into bands, Ledger (*Drevelle*), 4431.

Cutting peat and turf. *See* Peat.

Cutting pile fabrics, lappets, and like goods:
Horse clipper arrangement for shearing, Laloy, 2068.
Fustians, &c.; stop-motion, Burley, 3228.
Combined ripping and clipping machine for lappets, Porteous, 3619.
Velvets, velveteens, &c., Brookes (*Wattinne & Roetiger*), 3856.
Velvets, &c. in and out of loom, Dean & Orrah, 3878.
Velvets, &c. woven face to face, Goldschmid & others, 4417.

Cutting rock. *See* Boring.

Cutting roots. *See* Root-pulpers.

Cutting screws and screw threads. *See* Screws.

Cutting sugar. *See* Sugar.

Cyanogen:
Liberators for vessels containing, Adams, 3237.

Cylinders (miscellaneous):
Portable apparatus for drilling flanges of, Enoch, 190.
For sizing and dressing machines, Lancaster, 250.
Double glands for pump, Allen, 269.
For use in carbonising furnaces, Weare & Isherwood, 326.
Packing stuffing-boxes of air-break, Steel, 333.
Rock drill engine, &c. Haseltine (*Winchester & Phelps*), 485.
Arranging air break, Steel, 623.
For variable power hydraulic cranes, Walker & Pflaum, 719.
For making sulphates and chlorine, Mease, 977.
For direct acting pumps and rock-drills, Flower, 1101.
For sheep, &c. shearing apparatus, Flower, 1101.
For coffee-pulping machines, Lidgerwood, 1103.
Paper turning, for printing machines, Anthony & Taylor, 1127.
For storing and preserving aërated liquids, Corry, 1318.
Printing or impression, for web machines, Ingram, 1353.
Perforating drums for use in printing cheques, Beech, 1384.
For apparatus for compressing air, West, 1401.
Casting liquid meter, Jennings & Pocock, 1599.
For ore stampers, Warran & Ellis, 1794.
For flat rotary printing machines, Lane, 1875.
For feeding, &c. fuel to furnaces, Simpson (*Stevenson*), 1883.
For use in rolling leaf tea, Lyle (*Lyle*), 2010.
Rock drill engine, Edwards, 2013.
For cold producing machines, Clark (*Giffard*), 2064.
For rivetting machines, Lake (*Allen*), 2182.
Steam, for drying hanks of yarn, &c., Emsley & Smith, 2215.
Compound for forming jacquard, Tice, 2275.
Valves for steam drying, Fletcher, 2290.
Combing-machine, Rushton & others, 2292.
For rotary-pumps, Patrick, 2499.
Connecting steam & air, of pneumatic hammers, &c., Sholl, 2524.
For compressed air breaks, Steel, 2721.

Cylinders (miscellaneous)—*cont.*
Compound numbering, for printing tickets, &c., Wilson, 2783.
System of making moulds for moulding, McNish, 3006.
For direct-acting portable cranes, Abel (*Hahn*), 3151.
For rotary pumping machinery, Field, 3269.
Rotary pump, Brae, 3276.
For raising sunken vessels, Hemsted, 3514.
For use in steaming fabrics and yarns or warps, Holt, 3517.
For air-compressing engines, Benson (*Cope & Maxwell*), 3598.
Moulds for casting sinking cylinders, Fisher, 3883.
Lubricating, of air and gas pumps, Eaglesham & Rigg, 3969.
For raising nap upon cloths & fabrics, Kempe & Kempe, 4454.

Cylinders (motive-power engine):
Material for packing joints of cylinder covers, Fish, 9.
Movable ends for steam and other engine, Fielden, 17.
For gas or petroleum engines, Abel (*Daimler*), 71.
Double-acting for hot-gas and steam-engines, Boulton, 96.
For marine & other high pressure steam engines, Perkins, 224.
Constructing valve box or steam chest on, Hughes, 372.
Covers for rotary engine, Schrebler, 477.
Pneumatic, for steam and other engines, Collingridge, 867.
For air and water-power radial rotating engines, Taylor, 892.
For superheated steam-engines & pyrometer for, Dixwell, 1012.
Rotary steam-engine, Haseltine (*Lidgerwood*), 1086.
Purging, Browne (*Gravelaine-Malorey & Coly*), 1088.
Arranging valves in covers of, Brookes (*Hoyois*), 1223.
Self-acting lubricator for, Hare & Barton, 1385.
For steam, air or gas engines and packing same, Trossin, 1700.
Boring rotary engine, Johnson (*Lammerhirt*), 1867.
Compound steam-engine, Johnson (*Alden & Alexander*), 1927.
Lubricant for steam-engine, Wilkins, 2012.
Combining two or more, in engines, Bruce & Antisell, 2016.
Double, for steam-engines, Hughes, 2103.
For rotary engines, Patrick, 2499.
Double steam, for pumping engines, Cherry, 2813.
Preventing condensation in steam-engine, Dixwell, 2934.
Heat non-conductors for ends of steam-engine, Dixwell, 2934.
Metal for, and superheating steam in engine, Spartali, 3251.
Rotary engine, Brae, 3276.
Packing air-engine, Tongue (*Rider*), 3404.
For steam-pumping engines, Benson (*Cope & Maxwell*), 3598.
Automatic suet lubricator for steam-engine, Hughes, 3685.
Movable, for steam-engines, Pinfold & Browne, 3696.
Steam-engine, to work compoundly, Davies & Wilson, 3842.
Double, for steam pumping engines, Cherry, 3934.
Lubricating compressed air-engine, Holt, 4316.

Cylinders or rollers. *See* Rollers.

Cypher correspondence. *See* Cryptographs.

## D.

Damask (imitation). *See* Fabrics (miscellaneous).

Dampers. *See* Fire-places. Furnaces.

Dampers (label). *See* Labels.

Damping paper for printing. *See* Printing.

Date-indicators. *See* Calendars.

Date-stamps. *See* Stamps.

Davits. *See* Ships' boats.

Decanters, decanting liquids. *See* Bottles.

Deck-houses. *See* Ship-building.

Deck-lights. *See* Ship-building.

Decorating or ornamenting. *See* Ornamenting.

Decorations (fire-proofing). *See* Fire-proofing.

Decorticating grain & seeds. *See* Grain & seeds.

Defecating sewage, sugar, &c. *See* Filters.

Dentistry; tooth-powders and tinctures:
Lathes for dental purposes, Howarth & Howarth, 322.
Sustaining artificial teeth, Whitehouse, 596.
Coating teeth-sustaining discs with gold, Whitehouse, 596.
Portable dentists' lathes, Cranston (*Scott*), 677.
Composition or cement for stopping teeth, Labbé, 1259.
Instrument for extracting teeth, Elliott (*Converse*), 1773.
Tooth-powder and tincture, Morce, 2389.

Dentistry; tooth-powders and tinctures—*cont.*
Compound for dental plates, Thayer (*Smith*), 2513.
Nitrous oxide holder and liberator for use in, Adams, 3237.
Fixing artificial teeth by air pressure, Jones, 3774.
Vulcanising india-rubber for dental purposes, Mori, 3904.

Deodorizing; deodorants:
Liquid composition for, Weatherdon (*Vigné*), 107.
Sewage and sewer and drain gas by fumigation, Gill, 268.
Carbonaceous material for, Weare & Isherwood, 326.
Solid fæcal matters, &c. in making manure, Scott, 373.
Air for use in vinegar making, Pounsett, 447.
Powders and solutions for, Jones, 492.
Animal and vegetable matter for manure, Cox, 723.
Artificial animal charcoal for, Elcock, 807.
Supplying dry earth, &c. to earth-closets, Liddiard, 934.
Introducing fluids in trap of closets, &c., Brown, 1120.
Human excreta for manure, Whitwham (*Bonnefin*), 1195.
Blood in making manure, Steiner, 1419.
Sewage, to prevent pollution of rivers, Pape, 1625.
Cover for closets, urinals, commodes, &c., Popoff, 1693.
Fitting water-closet lids with a box for, Walkington, 1799.
Sewer gas, Cross, 1813.
Blood to be used for manure, sugar refining, &c., Smith, 1855.
Sewage, Coleman, 1954.
Carbonaceous powder from sewage, &c. for, Wilks, 1972.
Coated bags during vulcanizing, Newton (*Requa*), 2075.
Ferruginous charcoal and coke for, Lyttle, 2408.
India-rubber stoppers & similar articles, Catlow & Hoyle, 2547.
Sewage, sewer, and drain gases, &c. by fumigation, Gill, 2621.
Excreta and water in dry earth & water-closets, Taylor, 2802.
Night soil, &c., Rawson & Slater, 3703.
Human excreta, &c. in making manure, Wildsmith, 4103.
Spreading, &c. deodorants in dry-closets, Johnston, 4194.
Petroleum or other oils or spirit, Johnson & Johnson, 4255.

Depilating hides and skins. *See* Leather.

Depositing metals. *See* Coating metals.

Derricks. *See* Hoists.

Desiccating. *See* Drying.

Designs or patterns. *See* Patterns.

Desilvering lead. *See* Smelting.

Desks. *See* Furniture.

Despatch-boxes. *See* Boxes.

Destroying insects and vermin. *See* Insects.

Detergents. *See* Soap.

Dextrine:
Producing, for brewing and distilling, Johnson, 810.
Species of, from maize, Clark (*Chiozza*), 2007.

Dies:
For forming horse-shoes, Lake (*Russell*), 48.
For use in making shuttle springs, Pye, 70.
Arranging, for cutting and forming rivets, Lake (*Bray*), 100.
For spike splitting machines, Lake (*Whittemore*), 163.
Producing steel for making, Clark (*Eyquem*), 256.
For forming snap-hooks, &c., Johnson (*Nye*), 767.
Making metal, without engraving, Lake (*Champney*), 842.
For forming watch chain swivel heads, Clark (*Edge*), 1615.
For slotting needles, Oppenheimer (*Holland*), 1707.
For making bolts, spikes, screws, &c., Wells (*Johnson*), 1754.
For forming eyes upon pickaxes, adzes, hoes, &c., Chapman, 1823.
For shaping spade sockets and straps, Abel (*Blake*), 1829.
For making artificial foliage, Browne (*Ballin*), 1934.
For forming heads on screw blanks, Frearson, 2065.
For forming, &c. plate spring ends, Holmes (*Porter*), 2311.
For card setting machines, Haley, 2313.
For making wrought iron water spouting, Pritchard, 2504.
Cutting or threading, for bolts or pipes, Imray (*Boyd*), 2737.
For welding links, Lake (*Pittsburgh Chain, &c. Co.*), 2973.
For making sheet metal boxes, cases, pans, trays, &c., Thacker (*Martyn*), 3017.
And matrix, for producing designs on sheet metal, Rees, 3095.
And die boxes for screw cutting or chasing, Bailey, 3367.
For use in making cop-tubes, Knott & Harrison, 3572.
India-rubber stamps or, for painting, Paget, 3773.
For forming, &c. plate spring ends, Holmes (*Porter*), 3781.

Dies or moulds (brick). *See* Casting plastic.

Digestive compounds or mixtures. *See* Medicines.

Digging roots. *See* Tilling.

Dinner and other lifts. *See* Hoists.

Dip or wash for sheep, &c. *See* Medical treatment.

Dippel's oil. *See* Oils (animal).

Discoloring of metals (preventing):
Liquid composition for gold, silver, &c., Roucou, 4064.

Dishes; plates; dish covers and stands:
Apparatus for use in cleansing, Hope-Vere, 183.
Stands for, on board ship, Wirth (*Wertheim*), 687.
Tempering glass, Royer de la Bastie, 2157.
Fabric for making ornamental fruit dishes, Paton, 3119.
Annealing glass for making, Monckton, 3307.
Adjustable covers for dishes, Slater, 3391.
Making earthenware and porcelain, Till, 4033.

Disinfecting; disinfectants:
Liquid composition, Weatherdon (*Vigné*), 107.
Sewage, night-soil, gas, and other foul waters, Box & others, 214.
Powders and solutions for, Jones, 492.
Animal and vegetable matter for manure, Cox, 723.
Introducing fluids in trap of closets, &c., Brown, 1120.
Human excreta for manure, Whitwham (*Bonnefin*), 1195.
Infectious linen, bed-clothes, and rooms, Teychenné, 1337.
Furniture, closets, and drains, Teychenné, 1337.
Water-closets, by using the flushing action, Harries, 1367.
Supplying disinfectants to water-closets, &c., Howard, 1374.
Impregnating device for compounds, Wheeler, 1592.
Apparatus for, Harper, 1652.
Or ventilating cover for closets, urinals, &c., Popoff, 1693.
Animal blood for manure; powder for plants, Smelling, 1844.
Carbonaceous powder from sewage, &c. for, Wilks, 1972.
Disinfectant, Brewer (*Egasse & Co.*), 2911.
Vessels for holding chlorine & liberating same for, Adams, 3237.
Paper for use in water-closets, Austen, 3497.
Sick rooms and hospitals, Wavish, 4106.
Combining terebene with soaps, pomades, &c., Cleaver, 4242.
Combining terebene with soaps, pomades, &c., Cleaver, 4253.

Disintegrating food. *See* Preserving food.

Disintegrating or grinding. *See* Grinding.

Disintegrating rags. *See* Rags.

Dissolving resins and gum-resins. *See* Gums.

Distance indicators for cabs, &c. *See* Registering.

Distance of objects (ascertaining). *See* Telemeters.

Distance tables for cabs, &c. *See* Sign.

Distempering. *See* Paints.

Distilling and rectifying alcoholic liquids:
Whiskey or corn spirit, &c., Dudgeon, 33.
Preparing grain, &c. for, Johnson (*Adamson*) 381.
Saccharine matter free from fusel oil for, Maubré, 572.
Producing glucose or dextrine for, Johnson, 810.
Alcohol and separating "faints" therefrom, Gilbert, 1784.
Substitute for the "Monte jus," Clark (*Worms de Romilly*), [1948.
Tubular screw-apparatus for use in, Walker, 1986.
Using maize flour in, Clark (*Chiozza*), 2007.
Air current inductor for use in, Wawn & Willcox, 2340.
Wash pot, low wine, and spirit stills, Dudgeon, 3067.
Extracting sugar for making rum, Allport (*Repeat*), 3465.
Making worts from maize and rice, Wilson, 3855.
Mixing, boiling, and cooling apparatus, Wilson, 3856.
High proof or Cologne spirits, Reford, 4036.
Using hot compressed gases from boiler furnaces in, Preiswerk, [4224.

Distilling gas. *See* Gas (making).

Distilling (miscellaneous):
Aromatic liquors, liquids, vapours, &c., Dudgeon, 33.
Ammoniacal waters, &c., Wise (*Solvay*), 826.
Producing heat by friction for, Fisher, 1239.
Or subliming substances containing sulphur, Ross, 1867.
Bituminous and other minerals in the dry way, Ross, 1867.
Aromatic liquors, oils, tars, &c., Dudgeon, 3067.
Boilers for distilling resins and essences, Bordone, 4092.

Distilling (oils):
Mineral oils, tars, &c., Dudgeon, 33.
Regulating production during, Birrell, 2004.
Mineral and vegetable oils, tars, &c., Dudgeon, 3067.
Recovering volatile hydro-carbons given off, Young, 3127.
Retort for, asphalts and oil shales, Lyttle, 3579.
Retorts and fittings for, Bennie, 3934.

Distilling volatile metals. *See* Smelting.

Distilling water. *See* Filters.

**Distributing manure.** *See* Manure distributors.

**Distributing type.** *See* Printing.

**Ditches.** *See* Drains.

**Diving apparatus:**
Supporting respiration under water, Abel (*Fayol*), 998.
Supplying lamps with air under water, Abel (*Fayol*), 998.
Supplying air to lamps, Hughes (*Marschalk*), 1787.
Protective apparatus for divers, Parlour, 3445.
Hydrometer ship for diving operations, Fryer, 3816.
Helmets and lamps for divers, Boulcott, 4497.

**Docks; floating docks:**
Sinking cylinders for wall foundations, Munn & others, 419.
Floating, for raising vessels, Clark & Standfield, 514.
Blocks for supporting ships, Clark & Standfield, 514.
Shoring vessels upon floating, Clark & Standfield 514.
Keeping floating, horizontal, &c., Clark & Standfield, 514.
Excavating and removing earth in making, Lawson, 780.
Floating or pontoon, Koning, 1413.
Pumping mud, sand, &c. from, Woodford & Woodford, 1531.
Sinking foundations for walls of, Woodford & Woodford, 1531.
Excavator for use in making, Deas & Nairn, 1695.
Floating, Wilson (*Tideman*), 1796.
Preserving gates of, by "nicolline," Nicoll, 1933.
Sinking cylinders for wall foundations of, Munn, 2743.

**Docks (dredging).** *See* Dredgers.

**Dogs:**
Portable folding houses for, Peirce, 1190.
Fastenings for dog-collars, Rollason & Wood, 1407.
Training and testing, by moving artificial prey, Geary, 2476.
Apparatus for suckling puppies, Brookes & Heppenstall, 2719.

**Dogs and spikes.** *See* Nails.

**Door-hinges.** *See* Hinges.

**Door-locks and fastenings.** *See* Locks.

**Door-mats.** *See* Mats.

**Doors; gates; flaps; door furniture:**
Lattice framework covering for, Rideal, 113.
Hanging, opening, closing, and securing sliding, Cole, 693.
Ventilating arrangement for, Currall, 730.
Fire-doors for steam-boiler and other furnaces, Annan, 809.
Applying cements to door openings, Ross, 850.
Bottom, for mineral trucks or wagons, Wood, 1032.
Escutcheons for, Harrison, 1051.
Opening and closing folding doors, Coupe & Wilson, 1069.
Keeping open a certain distance, Sonnenthal (*Mueller & Selig*), [1394.
Making ornamental door plates, D'Humy, 1710.
Tenoning, &c. rails of, Gardner (*Abercrombie*), 1788.
Preserving dock gates by "nicolline," Nicoll, 1933.
Detecting fastening of railway carriage and other, Kaye, 2058.
Opening, &c. doors, flaps, and railway gates, Farvis, 2077.
Sockets for attaching handles to, Mylchreest, 2082.
Combined door fastener, alarm, and call-bell, Bacon, 2269.
Applying ventilating tubes to, Coste, 2544.
Closing railway carriage, Kitson & Naylor, 2601.
For close or open kitchen ranges, Redmayne, 3200.
Illuminating ornamental gratings for, Hyatt, 3357.
For prisons, Harris (*Cook & Heath*), 3375.
Sliding piece for, to exclude draft, Ritchie & Hawkins, 3508.
Reducing friction of heavy gates, Lillie, 3355.
For steel safes and strong rooms, White, 3690.
Securing, &c. double or folding, Lohnstein (*Collings*), 3716.
Hanging railway carriage and other, Clark (*Gégnon*), 3743.
Dress and finger guards for, Clark (*Gégnon*), 3743.
Weather protector for, Clark (*Gégnon*), 3743.
Preventing leakage in flap and illuminating area, Hyatt, 4063.
Securing hotel, &c. against thieves, Gedge (*Pérard*), 4214.
Opening and closing sliding, Barnard, 4347.

**Door-springs.** *See* Springs.

**Doubling fibrous materials.** *See* Spinning.

**Draft-gauges.** *See* Gauges.

**Draft-regulators.** *See* Fire-places. Furnaces.

**Drafts and cheques.** *See* Cheques.

**Draining mines.** *See* Mining.

**Draining sugar.** *See* Sugar.

**Drains; sewers; gutters; ditches:**
Moulding pipes for, in Portland cement, Stringfellow, 25.
Utilising slag for making pipes, Luckenbach, 243.
Flushing drains with fresh air, Gill, 268.
Deodorising gases in, by fumigation, Gill, 268.
Ventilating, Potts & Darnell, 272.
Stench traps for street, Buckley & Stock, 378.
Reducing gases and odours in, Rydill, 399.
Ventilating, Atkins, 527.
United district system of drainage, Williamson, 602.
Constructing pots for earth drains, Ross, 850.
Disinfecting, Teychenné, 1337.
Excavating or cutting ditches, &c. in land, Green, 1406.
Siphon traps for ventilating house, Buchan, 1499.
Ventilating sewers by suction, Corfield, 1672.
Combining engines and implements for draining, Clarke, 1589.
Impregnating and applying disinfectants to, Wheeler, 1592.
Exhausting and purifying gases from, by heat, Whitley, 1672.
Ventilating, Landau, 1674.
Apparatus for cleaning, Black, 1751.
Forming moulds for casting rhones or gutters, Hutchison, 1783.
Combined deodorising trap and ventilator, Cross, 1813.
Floodways for floors of buildings, Clark (*Morrell*), 2024.
Utilising gases from, Lake (*Turner*), 2046.
Periodically flushing or cleansing, Smith, 2377.
Trapping soil pipes and ventilating, Banner, 2401.
Double seal stench trap for, Wilson, 2545.
Deodorising gases in, by fumigation, Gill, 2631.
Ventilating trap for, Lanyon, 2715.
Ventilating water-closet soil pipes, Dodd, 2801.
Traps for drain pipes of basins, sinks, &c., Lake (*Adee*), 3001.
Composition for and making pipes, Tebbutt & Wade, 3363.
Ventilating, cleansing, &c. sewer pipes, Clark (*Morrell*), 3739.
Floodways for floors of buildings, Clark (*Morrell*), 3923.
Casting plumbers' traps for, Lake (*Du Bois*), 4026.
Ventilating and purifying sewers, Parker, 4378.
Trap and grating for, Clark (*White*), 4523.
Casting cast-iron gutters, Morrison, 4531.

**Draught-boards.** *See* Games.

**Draw-bars (railway).** *See* Railway-carriages.

**Drawers (furniture).** *See* Furniture.

**Drawers or pantaloons:**
Shaping and cutting out front of, Lake (*Fitz-Patrick*), 42.

**Drawing fibres.** *See* Spinning.

**Drawing instruments.** *See* Mathematical.

**Drawing nails.** *See* Nails.

**Drawing or rolling tubes.** *See* Rolling.

**Drawing wire.** *See* Wire.

**Drawings (exhibiting).** *See* Pictures.

**Draymen's ladders or pulleys.** *See* Ladders.

**Dredgers; dredging and deepening water:**
Grapples for dredgers, Holroyde, 469.
Using centrifugal pumps as, Woodford & Woodford, 1531.
Constructing various forms of, Woodford & Woodford, 1531.
Constructing and working, Williamson, 1661.
Using steam excavators as, Mills (*Chapman & Souther*), 1688.
Excavator applicable for dredging, Deas & Nairn, 1695.
Dredging at various depths, Johnson (*Van der Elst*), 2718.
Increasing delivery of, Mewburn (*Santenaire*), 2855.
Buckets for, and working same, Newton (*Cramer*), 2913.
Raising buckets by inflated bags, Gillett, 3210.
Bucket chain links and bucket backs, Simons & Brown, 3488.
Closing bucket ladder well of, Simons and Brown, 3488.
Raising and lowering bucket framework of, Muir, 3564.
For removing discharged contents from retorts, Lyttle, 3579.
Hydraulic jet apparatus for dredging, Lake (*Newton*), 3784.
Submerged traversing dredge, Lake (*Newton*), 3784.
Cup chain pump for dredging, Pothetos, 4065.
Arranging excavators of, Bruce & Batho, 4217.
Discharging mud or "spoil" from, by pneumatic pressure, [Duckham, 4400.
Dredging buckets; links for working same, Tucker, 4508.

**Dress improvers.** *See* Dresses.

**Dresses; ladies' under-clothing:**
Bustles or dress improvers of wire, Badcock, 280.
Edging scolloped borders of, Gedge (*Cornely*), 306.
Moulding buckram, &c. for dress improvers, Fyfe & Harris, 405.
Dress suspenders, Avery, 589.
Bustles and bosom forms or "pads," Lake (*Thomas*), 671.
Process for fireproofing, Wirth (*Kreitlmayr*), 959.
Dyeing or reviving faded, Petitdidier, 1094.
Felt skirts, James & Hamilton (*Keller*), 1322.

**Dresses; ladies' under-clothing—*cont.***

Perforated felt trimming for skirts, &c., Taylor, 1590.
Ornamenting skirts, Lamprell, 1873.
Imitating "appliqué" work on skirts, &c., Rodger, 2214.
Bathing dress or gown, Lloyd, 2235.
Petticoats, aprons, bustles, and dress improvers, Cadman, 2580.
Ornamental trimmings for, Page, 2814.
Cleaning clothing, Lake (*Blake*), 2847.
Bustles and bosom forms or "pads," Lake (*Thomas*), 2899.
Fastening for parts of, Heilborn, 2969.
Setting out patterns of garments, Clark (*Roudel*), 3022.
Measuring apparatus or conformator, Clark (*Roudel*), 3022.
Ornamental trimming for, McPherson, 3108.
Flat springs or hoops for crinolines, Kellogg, 3289.
Adjustable dress improvers, Usher, 3500.
Device for lifting and holding up skirts of, Kerr, 3558.
Dress suspenders, Fyfe, 3624.
Fabric from silk noil, &c. for dress goods, Sharp, 4129.
Bustles or dress improvers of strip cane, Badcock, 4226.
Felted fabric for skirtings, Hebblethwaite, 4305.
Using cotton fly for padding quilted petticoats, Pearson & [Pearson, 4360.

**Dressing and finishing.** *See* Finishing.

**Dressing flour.** *See* Grinding corn.

**Dressing grain and seeds.** *See* Grain and seeds.

**Dressing hides and skins.** *See* Leather.

**Dressing leather.** *See* Leather.

**Dressing ores.** *See* Washing.

**Dressing stone and millstones.** *See* Cutting stone.

**Dressing-cases.** *See* Boxes.

**Drill braces.** *See* Ratchet braces.

**Drills (drilling or boring).** *See* Boring.

**Drills (manure).** *See* Manure distributors.

**Drills (seed).** *See* Sowing.

**Drills (sharpening).** *See* Grinding & sharpening.

**Drinking vessels:**

Cleansing cups, saucers, wine glasses, &c., Hope-Vere, 183.
Bottle and cup for tourists, &c., Pieri & Smith, 342.
Protecting feet of glasses, Bonneville (*Perlas*), 1514.
Tempering glass cups, tumblers, &c., Royer de la Bastie, 2157.
Annealing glass for tea-cups and saucers, Monckton, 3307.

**Drinks or beverages.** *See* Beverages.

**Driving piles.** *See* Piles.

**Driving-bands.** *See* Bands and belting.

**Drugs.** *See* Medicines.

**Drums and cans.** *See* Cans.

**Drums and pulleys.** *See* Pulleys.

**Dry or earth-closets.** *See* Water-closets.

**Dryers:**

Melting, &c. gums for making, Spence (*Lefebvre & Co.*), 3164.

**Drying or desiccating and expressing moisture:**

Floor-cloths in preparing for printing, Nairn, 35.
Yeasts, to preserve their fermentative power, Ellis, 69.
Marine and other steam-boilers when out of use, Baker, 86.
Double bottoms of iron ships, Baker, 86.
Chlorides, Hargreaves, 147.
Peat, bricks, articles of food, &c., Perry, 152.
Hanging lines for, papers and fabrics, Lloyd & Scully, 226.
Hot-air stoves & apparatus for, wool, yarn, &c., Howarth, 240.
Yarn in sizing and dressing machines, Lancaster, 250.
And breadthening woven and other web fabrics, Stark, 370.
Earths, Milburn & Jackson, 518.
Ovens or drying-closets, Peacock & Rudkin, 590.
Peat, Morgan-Brown (*Verdier*), 654.
Fabrics and arranging apparatus for same, Snell, 695.
Corn and seeds, Sainty, 708.
Animal and vegetable matter for manure, Cox, 723.
White lead, crystals, &c., Bramham, 869.
Seasoning or drying timber, Gardner, 1126.
Hydro-extractors, Broadbent, 1144.
Heating drying floors by waste gases, Lockey, 1159.
Pressed peat blocks, Conradi (*Kesseler*), 1301.
Spent tan, Murdoch (*Honnaij*), 1397.
Temples for use in drying fabrics, Wolstencroft, 1408.

**Drying or desiccating, &c.—*cont.***

Tentering, drying, &c. fabrics, Newton (*Palmer*), 1457.
Peat, &c., Hall & Bainbridge, 1460.
Blocks of chloride of sodium or potassium, Brock, 1502.
Paper and cloth in process of making, Salt, 1573.
Curing-cribs for drying peat-fuel, Lake (*Dodge*), 1725.
Expressing liquids from solids, &c., Hill, 1745.
Working punkahs, &c. for drying fabrics, Pollock, 1833.
Sludge or sewage deposit, Anderson, 1845.
Tubular screw-apparatus for, malt, hay, grain, &c., Walker, 1896.
Balls of salt for salt-cake, &c., Milburn & Jackson, 1917.
Kiln drying germinated grain, Kunkler, 1971.
Aerotherm portable oven for, Bonneville (*Lesobre*), 1937.
Maize in making flour, Clark (*Chiozza*), 2007.
Annular ovens or kilns for, Wood, 2076.
Kiln floors for drying malt, Wise (*Herrmann*) 2138.
Fibrous materials in the hank, Emsley & Smith, 2215.
Centrifugal machine for, sugar, &c., Fryer & Alliott, 2225.
Valves for steam drying cylinders, Fletcher, 2290.
Bricks, lime, &c. preparatory to burning, Batchelar, 2299.
Bodies, by burying in heated absorbents, &c., Hyatt, 2307.
Green beans, cherries, &c.; fish and flesh, Hyatt, 2307.
Furnaces for, Hill, 2454.
Using air-heating pipes of furnaces for, Clark, 2474.
Sheets of paper after manufacture, Clark (*Desnos*), 2510.
Bottle drying machine, Macdonell, 2551.
Refrigerator for warm damp substances, &c., Foster, 2688.
Carcases of animals by refrigeration, Foster, 2688.
Hops, malt, grain, &c. by heated air, Baker & Forbes, 2768.
Steaming caked hops, &c. to facilitate, Baker & Forbes, 2768.
Green sea-wrack, Dufrené (*Glaizot frères*), 2815.
Organic matters by superheated steam, Robey, 2928.
Tile for drying floors of malt and other kilns, Woods, 2942.
Coagulated blood for manure, Johnson (*Lissagaray*), 2960.
Bone black charcoal, &c., Clark (*Gandolfo & Jarboe*), 3038.
Cubes of pressed sugar, Clark (*Gandolfo & Jarboe*), 3050.
Vegetable fibres for spinning, Coleman, 3072.
Coal used in making artificial fuel, James, 3173.
Bricks, tiles, &c. after moulding, Prestage, 3192.
Ore and coal for, and in metal furnaces, Crampton, 3282.
Foundry stoves for drying moulds and cores, Fisher, 3304.
Drying and stretching woven fabrics, Knowles & Kay, 3328.
Fibrous materials and other substances, Knowles & Kay, 3328.
Chloride for making sulphate of soda, &c., Robinson, 3338.
Fruit, vegetables and other matters, Oakes (*Reynolds*), 3442.
Tentering and drying machine, Burlison & Whitaker, 3512.
Chlorides in making salt-cake, Norman, 3559.
Combination of washing, steaming, and drying apparatus, [Schofield & others, 3579.
Utilising, economising, &c. waste heat in, Maw, 3699.
Crushed coal previous to grinding, Ferry, 3714.
Damp fuel in furnaces, Newton (*Verdié*), 3771.
Heating chicory, malt, and other kilns, Wright & Saul, 4029.
Fabrics, &c. in waterproofing, Clamond, 4176.
Fabrics when woven with wet weft, Bywater & Whitaker, 4218.
Bricks, tiles, earthenware, bottles, &c., Jackson, 4219.
Hops, by a centrifugal machine, Broadbent & Brown, 4274.
Hinges or joints for clothes-horses, Rowe, 4308.
Burning vapours in drying sewage, &c., Milburn & Jackson [4322.
By hot compressed gas from boiler furnaces, Preiswerk, 4324.
Clothes-horses and other folding frames, Tongue (*Rowe*), 4327.
Heating drying closets by waste from stoves, Taylor, 4336.
Bricks and other goods in kilns, Cowell, 4408.

**Duplex telegraphy.** *See* Telegraphs (electric).

**Dust-food.** *See* Preserving food.

**Dyeing fabrics, fibres, and yarns:**

Preparing oxidised fatty acids for use in, Gatty, 124.
Glossing hemp, &c. before, Kuenemann (*Magner & Kuenemann*), 136.
And mordanting hemp, &c., Kuenemann (*Magner & Kuenemann*), 136.
Staining woven or felted fabrics, Laycock, 572.
Bronzing or giving fabrics a metallic effect, Thackrah, 695.
Arranging fire-bars for dyer's coppers, Annan, 809.
Silk, &c., mordant for and fixing same, Petitdidier, 1094.
Yarns upon cops, Wirth (*Goehrung*), 1135.
Applying color to pile of cotton velvets, &c., Worrall, 1334.
Treating wild silks for, Abel (*Tessié du Motay*), 1365.
Staining woven and felted fabrics, Rhodes & others, 1511.
With aniline, &c. without usual mordants, Martius, 1584.
Fixing and developing colors in, Clark (*Thierry-Mieg*), 1584.
Fabrics with aniline black, Clark (*Grawitz*), 1620.
Producing alumina for making mordants, Prentice, 1725.
Combinations of mercaptan for, Hughes (*Bartels & Freise*), 1788.
Aluminous cakes for use in, Spence & Spence, 1951.
Meltons, &c. by aniline solutions only, Schroeder, 1974.
Saturating yarns, &c. with liquids in, Reid, 1811.
Obtaining sulpho-acetate of iron for, De Montoison, 2110.
Keeping cloth straight and open in, Messrs. Marsden, 2117.
Scarlet, orange, pink, and other colors, Smith & Berry, 2282.
China grass, straw, rushes, and canes, Smith & Berry, 2287.

Dyeing fabrics, fibres, and yarns—*cont.*
Purifying and drawing off water for, Macdonald, 2343.
Wool and other fibres and yarns, Bartleet (*Chambers*), 2458.
Recovering surplus indigo in, Auchinvole (*Bouhon*), 2713.
Keeping cloth straight and open in, Messrs. Marsden, 2845.
Cisterns or vessels for use in, Messrs. Marsden, 2845.
And mordanting yarn while extended, Baerlein, 2866.
Ageing and steaming apparatus, Jones, 2943.
Making mordants or oleates for, Sieber (*Gonin*), 3064.
Making and using emulsions, Sieber (*Gonin*), 3064.
Revolving cages inside keirs, &c., Copley & Jennings, 3141.
Arranging rollers for squeezing yarns in, Reid, 3319.
Using extracts of eucalyptus and pangué in, Masurier, 3634.
Wringing skeins of silk, &c., and separating the threads in, [Sauvée (*Corron*), 3757.
Combined process of dyeing and sizing yarns, Paton, 3979.
Using gelatine, &c. with dyes in, Anderson & Rotherham, 4177.
Fixing weighting material in, Anderson & Rotherham, 4177.
Imparting gloss to silk, &c. in, Anderson & Rotherham, 4177.
Filters for use in dye works, Ramsay, 4420.

Dyeing wood, leather, &c. *See* Wood. Leather. &c.

Dyes; printing-colours:
Compounds for use in making aniline colors, Mackay, 200.
Colouring matter for printing, Holliday (*Schultz*), 498.
Coloring matter from anthracene, Kottgen (*Gauhe*), 619.
Coloring matters, Holliday, 1031.
Obtaining yellow dye or phosphine, Versmann, 1038.
Extracting colors, Lessware, 1083.
Producing aniline black, Clark (*Grawitz*), 1620.
Making and treating alizarine, Heinzerling & McGowan, 1712.
Mixing raw eggs, &c. with dye stuffs, Brennand, 1839.
Utilising arseniate of lime from color works, Parnell, 2143.
Producing a series of aniline, Wolff & Betley, 2421.
Recovering aniline from waste waters, Wolff & Byrom, 2422.
Producing, from napthaline, &c., Wolff & Betley, 2448.
Recovering indigo, Auchinvole (*Bouhon*), 2713.
Using acid residue of aniline works in disinfectants, Brewer [(*Egasse & Co.*), 2911.
Soluble coloring matters for dyeing, Weigel, 3320.
Extracting colors for dyeing, Lessware, 3338.
Using electricity in making colours, Presser, 3466.
Purpurine or oxyalizarine, Clark (*Grawitz*), 4138.
Nitro-alizarines, nitroxyalizarines, Clark (*Grawitz*), 4138.
Chloroxyalizarines, Clark (*Grawitz*), 4138.
Using phosphorus for deoxidising indigo, Underwood, 4208.
Producing green and other colours, Underwood, 4208.
Violet black, Wilkinson (*Joly*), 4484.

Dynamo-electric machines. *See* Electricity.

## E.

Ear-brushes. *See* Medical treatment of man.

Earrings. *See* Jewellery.

Earth-closets. *See* Water-closets.

Earthenware; porcelain; ceramic wares:
Applying, to parts of milling machines, Webster, 459.
Copper plates for printing or ornamenting, Brown, 714.
Kilns or ovens for firing, Malpas, 1064.
Elastic type and apparatus for printing, &c., Holyoake, 1255.
Protecting articles of, Bonneville (*Perlau*), 1514.
Imitation "faïence parisienne," Gedge (*Guelton & Co.*), 1553.
Rotary tool holder for potters' lathes, Gaskell, 1705.
Combining ceramic ware with glass, &c. for making and orna- [menting various objects and surfaces, D'Humy, 1710.
Casing articles of terra-cotta and, D'Humy, 1710.
Tools for and turning and shaping potters' clay, Napier, 1736.
Separating clay from water for potters' use, Hill, 1745.
Printing designs for pottery, Bartlett & Murray, 1746.
Covers for articles in earthenware, Mariotti, 1876.
Ink for, and transferring designs, &c. to, Holyoake, 1941.
Producing mural fresco paintings, Brock, 2282.
Decorating flat surfaces, busts, statuettes, &c., Brock, 2282.
Heating kilns for burning, by means of gases, Batchelar, 2299.
Jars for cooking, &c. food, De la Perrelle (*Guérin*), 2437.
Annealing glass as a substitute for, Monckton, 3307.
Shaping bottles, jars, &c. in, Murray & Crighton, 3100.
Crockery and china-ware suspenders, Rhodes, 3412.
Machine for china painting, Paget, 3661.
India-rubber tools and surfaces for painting, Paget, 3773.
Pressing or moulding articles in pottery, Boulton, 3980.
Forming, &c. bands and bats for plates, dishes, &c., Till, 4033.
Grinding materials used in making pottery, Boulton, 4170.
Carriages for use in making retorts, &c., Cliff, 4174.
Waterproofing baked clays, Clamond, 4176.
Drying or partially drying bottles, &c., Jackson, 4219.

Earthenware pipes and traps. *See* Pipes. Traps.

Earthing up celery, &c. *See* Garden implements.

Easels:
For artists' use, Jensen (*Baumotte*), 494.
Combined case, easel, seat, and table for artists, Whyte, 4251.

Edging and embroidering. *See* Sewing.

Edgings:
Applying cements to and constructing, Ross, 850.

Egg-beaters. *See* Preserving food.

Eggs (preserving). *See* Preserving food.

Ejectors for lifting water, &c. *See* Pumps.

Elastic fabrics. *See* Fabrics (elastic).

Elbow-caps. *See* Knee-caps.

Electricity, galvanism, and magnetism (applying):
To decomposing water to obtain hydrogen & oxygen, Vera, 175.
To ships' logs, Hargreaves, 353.
Magnets to boots and shoes for imparting heat, Wetton, 359.
Magnets to carving forks, Russell & Dominy, 398.
To regenerating Smee and other batteries, Clark (*Lontin*), 473.
To obtaining metals from their salts, Clark (*Lontin*), 473.
Applying electro-dynamic machines, Clark (*Lontin*), 473.
To obtaining chemical reactions, Clark (*Lontin*), 473.
To working railway breaks, Laycock, 478.
To increasing locomotive traction, Jensen (*Bürgin*), 506.
To electrotyping pickled iron plates, Terrell, 519.
In producing copper plates or printing surfaces, Brown, 714.
To regulating flow of liquids in breweries, &c., Gooch, 775.
To operating railway breaks, Wise (*Masui*), 792.
To stopping, urging on, and controlling horses, Laycock, 805.
To lighting railway carriage and other gas lamps, Wier, 806.
To cases, counters, &c. for preventing robbery, Kitson, 855.
To igniting fire extinguishers, Wallace & Tucker, 890.
To heat or pressure indicators and alarms, Bagot, 945.
To duplex telephones, Johnson (*Gray*), 974.
Magnets to current indicators, Moore, 990.
To steam superheater alarms, Dixwell, 1012.
To indicating working of engines at a distance, Boire, 1022.
Self-acting alarm for wet gas-meters, Hill, 1040.
To recording & alarm steam gauges, Haseltine (*Edson*), 1181.
Magnetic filtering blocks or slabs, Spencer, 1368.
To detecting counterfeit coins, Stearn, 1399.
Magnets to actuating apparatus generally, Faulkner, 1800.
Magnets to brass and iron separators, Faulkner, 1800.
To prevent boiler deposit, Morgan-Brown (*Crompton*), 1967.
To preventing incrustation in steam boilers, Collet, 2002.
Magnetising articles of food, &c., Darlow & Fairfax, 2102.
Electric apparatus for turret clocks, Conod, 2335.
In producing electric light, Chauvin & others, 2410.
To pneumatic telegraphy and lighting, Lake (*Wippern*), 2509.
To low-water alarms for steam-boilers, Roberts, 2534.
Magnetic apparatus for men and animals, Wetton, 2729.
To firing torpedoes, McEvoy, 2786.
To passenger registers for vehicles, Clark (*Thomson*), 2864.
Electric apparatus for clocks, Johnson (*Gondolo*), 2921.
Electric alarm for steam-engine cylinders, Dixwell, 2934.
To stop-motions for spinning, &c., Bullough & Smalley, 3002.
To stop-motions for spinning and weaving, Wilkinson, 3032.
To lighting gaseliers and lamps, Gosling & Gluckstein, 3048.
To chest, lungs, and other parts of human body, Rogers, 3187
To electro-typing, &c., Alexander (*Bürgin*), 3243.
Magnetic tuft carrier for brushes and brooms, Ascough, 3333
To steam and other pressure gauges, Vaughan (*Neech*), 3341.
To curing or relieving nervous diseases, &c., Whiting, 3345.
Magnetism for curative and other purposes, Lyon, 3382.
Self-adjusting electric bell indicator, Morton, 3431.
To making argand gas-burners, Jewitt (*Rose*), 3440.
In making steel and colors, Presser, 3466.
To draft gauges, current meters, ships' logs, &c., Pastorelli, 3706
Magnets to curative purposes, Welton, 3727.
To pens for perforating sheets for printing, Edison, 3762.
To separating or evaporating substances, Lake (*Holden*), 3785.
To operating steam-engine valves, Johnson (*Wolcott*), 3789.
To photometers or "radiometers," Crookes, 3860.
To thermo-regulators, Mori, 3904.
To lighting and extinguishing gas lamps, Warden, 3924.
In treating liquid sewage, Bannehr, 4122.
To regulating heat in evaporating brine, Bull, 4200.
Pocket electric briquet or lighter, Lake (*Van Tenac*), 4206.
To fire extinguishing apparatus in buildings, Hodson, 4240.
In coating iron and other metal with tin, Blewitt, 4302.
In making hydrogen and oxygen, Ellerbeck & Syers, 4326.
In firing explosive gas-engines, Ellerbeck & Syers, 4326.
Electro-coppering calico printers' rollers, Wilde, 4515.
To refining copper, Wilde, 4515.

**Electricity, galvanism, & magnetism (generating):**

Thermo-electric apparatus for, Wollaston, 58.
In gas or hot-air engines, Vera, 175.
Galvanic batteries, Wirth (*Leiter*), 296.
Commutators and batteries, Harper, 336.
Galvanic battery cells, Tyer, 449.
Dynamo-chemical machine; voltameters, Clark (*Lontin*), 473.
Artificial charcoal for carbon plates, Elcock, 807.
Galvanic batteries, Bennett, 1169.
Arranging compound magnets of motors, Courtenay, 1487.
Encasing magnets ("Altandi systemœ"), Faulkner, 1800.
Battery for use in boilers, Morgan-Brown (*Crompton*), 1967.
In electro-magnetic machines, Clark (*Hussey*), 2043.
Battery, magnet, and rheostat, Nelson & Anderson (*Paine & Paine*), 2049.
Portable keg-shaped battery, Gardner (*Mowbray*), 2132.
Arbor and test gauge for batteries, Gardner (*Mowbray*), 2132.
Mode of distributing currents, &c., Clamond, 2205.
Induced currents for telegraphs, Bonneville (*Boyle*), 2393.
Pile for electric lamps, Chauvin & others, 2410.
Galvanic apparatus for lighting, &c., Lake (*Wippern*), 2509.
Electro magnets, Hequet, 2564.
Circuit closers for railways, Clark (*Rousseau*), 2657.
Manganese batteries, Warden & others, 2707.
Circuit closers for torpedoes and signalling, McEvoy, 2786.
Distributors and commutators, Johnson (*De Mersanne*), 2787.
Thermo-electric batteries, "caloriators," Faure, 2946.
Continuous currents by rotating magnets, Kilner, 2993.
Regulating tension of currents, Kilner, 2996.
Galvanic battery for lighting, Gosling & Gluckstein, 3048.
Batteries; applying same to human body, Rogers, 3187.
Constructing magnets, Alexander (*Bürgin*), 3243.
Annealing glass for electrical purposes, Monckton, 3307
Galvanic battery, Fuller & Fuller, 3340.
Flexible and crystalline medical magnets, Whiting, 3345.
Intensifying coils and contact breakers, Rooke, 3354.
Magneto-electric machines, Lake (*Fuller & Crandall*), 3364.
Tapering magnetic poles for, Lake (*Fuller & Crandall*), 3364.
Magnets, armatures, &c. for motors, Johnson (*Camacho*), 3416.
Batteries to avoid waste of electricity, Prosser, 3466.
Battery for working autographic pens or perforators, Edison, 3762.
Thermo-electric piles for vulcanisers, Mori, 3904.
Galvanism on ships' sides to prevent fouling, &c., Betteley, 3997.
Galvanic battery, Browne (*Kimball*), 3999.
Pile or battery for pocket briquets or lighters, Lake (*Van Tenac*), 4206.
Moulds for casting chloride of silver piles, Lake (*Van Tenac*), 4206.
Galvanic batteries, Fuller & Fuller, 4270.
Electric pile, Cerpaux, 4289.
Dynamo and magnetic-electric machines, Clark (*Bertin*), 4311.
Gas-engine for driving electric-machines, Alexander (*De Bischop*), 4342.

**Electric-light:**

Mounting, &c. carbon points in producing, Kosloff, 441.
Charging machines with magnetism for, Clark (*Lontin*), 473.
General arrangement of apparatus, Jensen (*Koun*), 970.
Mode of mounting carbon stems, Jensen (*Koun*), 970.
Employing, under water, in mines, &c., Chauvin & others, 2410.
Carbon points for, and mounting same, Brewer (*Kosloff*), 2767.
Passing currents to carbon points, Brewer (*Kosloff*), 2767.
For signalling, lighting, field telegraphy, &c., Johnson (*De Mersanne*), 2787.
For nocturnal operations, mining, & navigating rivers, Johnson (*De Mersanne*), 2787.
Magneto-electric apparatus for producing, Kilner, 2996.
Machine for producing, Alexander (*Bürgin*), 3243.
Lamps; supplying electric fluid thereto, Prosser, 3466.
Carbon and fluid electrodes & glass shades for, Prosser, 3466.
Portable or pocket briquet or lighter, Lake (*Van Tenac*), 4206.

**Electric-signals.** *See* Signals.

**Electric-telegraphs.** *See* Telegraphs.

**Electro-magnetic engines:**

Arranging compound magnets of, Courtenay, 1487.
Magnets for, Faulkner, 1800.
For driving sewing and light machinery, Clark (*Hussey*), 2043.
Battery, magnet, and rheostat for, Nelson & Anderson (*Paine & Paine*), 2049.
Using, with thermo-electric generators, Clamond, 2205.
And thermo-electric batteries for same, Faure, 2946.
Magnets for, Alexander (*Bürgin*), 3243.
Magnets, armatures, & commutators, Johnson (*Camacho*), 3416.
Thermo-electro-magnetic motor, Courtenay, 3509.
For working autographic pens or perforators, Edison, 3762.
Isolating, &c. armatures in, Browne (*Kimball*), 3999.
Galvanic batteries for, Browne (*Kimball*), 3999.
Making and breaking contact in, Paine & Nelson (*Paine*), 4118.

**Electro-plating.** *See* Coating metals.

**Electro-typing:**

Machine for, Alexander Bürgin, 3242.

**Elevating or loading carts, &c.** *See* Carriages.

**Elevating or stacking.** *See* Stacking.

**Elevators for buildings, &c.** *See* Hoists.

**Embankments.** *See* Breakwaters.

**Embossing; producing raised patterns:**

Producing raised inscriptions, Mallet, 144.
Producing embossed letters, &c. upon glass, Kelly, 321.
Producing copper plates or printing surfaces, Brown, 714.
Forming metal plates with designs in relief, Brown, 1275.
Or stamping spool heads, Haseltine (*Lyman*), 1781.
Compound for and imitating, Loewenberg, 1837.
Forming artificial foliage, Browne (*Ballin*), 1934.
Or indenting letters for the blind, Morgan-Brown (*Harding & Johnson*), 2119.
Leather and other material, Lee, 2209.
Metal sheets, with copies of writings, &c., Dillon, 2613.
Leather, textile fabrics, &c., Searle & Cook, 2886.
Coating fabrics for producing imitation, Loewenberg, 3050.
Counting impressions taken from the die, Napier, 3074.
Producing raised designs on sheet metal, Rees, 3095.
Rim or binder of hat and bonnet shapes, Morand, 3234.
Designs on lithographic stones, Manning, 3384.
On wood for graining patterns, Embley & Pilkington, 3670.
Leather and other material, Lee, 3846.
Sheets of rubber, &c. for tobacco pouches, Macintosh, 3933.
Designs on leather and skins, Bonneville (*Charton*), 3956.

**Embroidering.** *See* Sewing.

**Emery-powder:**

Substitute for, from furnace slag, Luckenbach, 243.

**Emery-wheels.** *See* Grinding, polishing.

**Enamelling; enamels:**

Stoving enamelled articles, Peacock & Rudkin, 590.
Elastic type and apparatus for printing, &c., Holycake, 1253.
Paper and paper cloth in process of making, Salt, 1573.
Compound for imitating leather, &c., Loewenberg, 1837.

**Engine-counters.** *See* Indicating speed.

**Engraving; etching; producing sunk devices:**

Producing inscribed surfaces in lieu of, Mallet, 144.
Producing copper plates or printing surfaces, Brown, 714.
Machinery for engraving ivory, wood, &c., Notton, 743.
Etching on glass, Skinner, 1030.
Numerical discs used in printing cheques, &c., Beech, 1384.
Machinery for engraving ivory, wood, &c., Notton, 2791.
Producing sunken devices on sheet metal, Rees, 3095.
On leather, and tool for same, Bonneville (*Charton*), 3956.
By sand blast and producing designs for same, Gilbee (*Tilghman*), 4098.
Portable apparatus for, driven by air, &c., Lawrence, 4398.
Pantograph engraving machine, Lake (*Hope*), 4524.

**Envelopes:**

Making black and colored borders on, Parkins, 1214.
Safety enclosures or, Willis, 1310.
Advertising back for, and opening, Vaughan (*Goncér*), 1995.
Laying out, for bordering with black, &c., Lyon, 2598.
Safety, to prevent tampering, Booth, 2867.
Adhesive safety, Gedge (*Schmidt*), 4025.

**Envelopes for seed crushing.** *See* Oils (vegetable).

**Equipments (military):**

White metallic alloy for making, Clark (*Le Marquand*), 815.
Sack for carrying soldiers' cloaks, Huch, 2483.
French vegetable leather for, Tongue (*Jolissaint-Vonèche & others*), 3294.

**Essences (distilling).** *See* Distilling.

**Essential oils.** *See* Oils (vegetable).

**Etching.** *See* Engraving.

**Evaporating pans.** *See* Heating or evaporating.

**Excavating; excavators:**

Rotary machinery for, Gay, 160.
Material in sinking cylinders, Munn & others, 419.
Beds of rivers, canals or docks, Holroyde, 469.
Or extracting peat, Morgan-Brown (*Verdier*), 654.
Machines for and removing the material, Lawson, 780.
Combined helical and cylindrical excavator, Stoney, 1291.

**Excavating; excavators**—*cont.*

Handles for working excavators, Stoney, 1201.
Machine for digging or, Brakell, 1393.
Ditches, channels, &c. in land for drainage, Green, 1406.
Converting steam-cranes into, Woodford & Woodford, 1531.
Combining engines with implements for, Clarke, 1589.
Constructing and working excavators, Williamson, 1661.
Steam excavators, Mills (*Chapman & Souther*), 1688.
Excavator for use in sinking cylinders, Dess & Nairn, 1695.
Sinking cylinders; miser for same, Walker 2556.
Screw excavator for sinking hollow cylinders, Munn, 2743.
Buckets for, and working same, Newton (*Cramer*), 2913.
Tunnels and cuttings in chalk, rock, &c., Cowper, 3233.
Surface excavator with elevator, Wilson (*Stryker*), 3495.
Adapting cranes for, in forming canals & cuttings, King, 3536.
Hydraulic jet apparatus for, Lake (*Newton*), 3784.
Excavator ploughs and earth boxes, Clark (*Stryker*), 3988.
And deepening channels, rivers, docks, &c., Bruce & Batho, 4217.
Steam excavator, Dunbar & Ruston, 4480.

**Excreta (treating).** *See* Manure.

**Exercises and games.** *See* Games.

**Exhausting air and gases.** *See* Air and gases.

**Explosive compounds:**

Mining and blasting powder, Espir (*Le Bricquir*), 291.
Keen, portable magazines, &c. for, Chambers, 612.
Carbonising spent tan for powder, Murdoch (*Honnaij*), 1397.
Xyloidine and soluble gun-cotton, Spill, 1739.
Gunpowder blasting charges, Murdoch (*Müller*), 1885.
Casks for storage or transit of, Walker, 1887.
Producing and using soluble gun-cotton, &c., Greening, 2044.
Soluble gun-cotton compounds; using same, Greening, 2059.
Compressing powder into cakes, &c., Murdoch (*Müller*), 2135.
Powder or wax ("vigorite"), Nordenfeldt (*Bjorkman*), 2459.
Storing and conveying gunpowder and other, Wright, 2955.
Treating vegetable fibre for, Dittmar, 3088.
Inodorous and smokeless, for artillery, &c., Dittmar, 3088.
Safety blasting powder, Lake (*Courteille*), 3217.
Making "heraklin" or, Morgan-Brown (*Dieckerhoff*), 4155.
Gelatinizing nitro-glycerine, &c. and rendering sluggish, Newton (*Nobel*), 4179.
Preparing nitro-glycerine for blasting, Punshon, 4268.
Safes for containing and protecting gunpowder, Roby, 4516.

**Explosive liquids (storing and transporting):**

Petroleum oil and spirits, Sinibaldi (*Sinibaldi*), 136.
Drawing, so as to prevent formation of gases, Woods, 1492.
And drawing off petroleum, &c., Howes, 3583.
Petroleum, kerosine, benzine, naphtha, &c., Grune, 4030.

**Expressing moisture.** *See* Drying.

**Extinctors.** *See* Fire-engines.

**Extinguishers.** *See* Candles.

**Extinguishing fire.** *See* Fire-engines.

**Extinguishing gas.** *See* Gas (lighting, &c.).

**Extracting metals from ores.** *See* Smelting.

**Extracts and infusions (obtaining):**

Compounds for, Mackay, 200.
Method of, Lessware, 1053.
Apparatus for extractive purposes, Wire & Gard, 2125.
Method of, Lessware, 3338.

**Eyelets:**

Separating and arranging rivets or, Lake (*Bray*), 100.
For securing umbrella, &c. coverings and sheaths, Hurcombe, 3146.

## F.

**Fabrics (elastic):**

Elastic web looms, Bonner, 11.
Weaving elastic terry fabrics, Turner, 154.
Elastic looped, for surgical purposes, Keywood, 1824.
Weaving elastic terry, plain, &c. webs, France & Bradsworth, 2163.
Composite, with trimmed or hemmed edges, Roux, 2321.

**Fabrics (miscellaneous):**

Flocking woollen or other, Rhodes & Rhodes, 16.
Goffering, crimping, &c. Johnson (*Lowerre & Tucker*), 85.
Creasing, folding or plaiting, Rath & Scantlebury, 232.
Preserving, from decay, Clark (*Rogé & others*), 238.

**Fabrics (miscellaneous)**—*cont.*

Flexible or elastic casts for imitating, Loewenberg, 420.
Treating, for "asphaltic carpets," Gedge (*Gaudefroy*), 453.
Moulds for and producing imitation, Lake (*Knelles*), 486.
Producing patterns on pile fabrics, Worrall, 1224.
Filling and producing quilted, Ritchie & Ritchie, 1422.
Producing bronze, brocade, or gold patterns, Bennett, 1426.
Making paper cloth, Salt, 1573.
Combining cloth & paper for moulds, covers, &c., Smieton, 1781.
Compound for and producing imitation, Loewenberg, 1857.
With swan down warp, &c., Henderson (*Picard & Chesnet*), 1999.
Producing patterns on, Newton (*D'Argence & Delamare*), 2161.
Combining paper-pulp, &c. with fabrics, Turner & Wilson, 2166.
Preserving, Vaughan (*Hostelart*), 2391.
Producing tubular, &c., in sewing-machines, Hughes, 2466.
Compound paper fabric, Ibbotson, 2663.
Cleaning woollen and other, Lake (*Blake*), 2847.
Extracting and recovering oil or grease from, Sykes, 2926.
Coating fabrics for producing imitation, Loewenberg, 3060.
Of wire twisted in a helical spiral form, Ramsden, 3110.
Compound fabric, for matting, floor coverings, &c., Paton, 3119.
Compound fabric, for making shallow vessels, &c., Paton, 3119
Grouping and applying magnets to, Lyon, 3382.
Magnetic cloth for curative purposes, Lyon, 3382.
Producing cotton elysians, beavers, &c., Berry & Jackson, 3544.
Preparation for removing paint or grease from, Hayhoe, 3614.
Using eucalyptus and pangué for preserving, Masurier, 3634.
Combined cloth and paper fabric for bags, &c., Smieton, 3684.
Plaiting, folding, and finishing, Rath, 3717.
Applying magnets to, for curative purposes, Welton, 3727.
India-rubber tools and surfaces for painting, Paget, 3773.
Producing "camelia silk," Mewburn (*Graissot*), 3787.
Textile fabric having a weft of silk noil, &c., Sharp, 4129.
Applying wire fabrics as an internal core, &c., Ramsden, 4189.
Applying wire fabric, as a jacket or covering, Ramsden, 4189.
Plaiting, Nickols, 4243.
Figured fabric with plain body fabric, Lodge, 4280.
Producing designs in metals on silks, Andrew & others, 4541.

**Face-shields or respirators.** *See* Respirators.

**Fæces (treating).** *See* Manure.

**Faïence Parisienne.** *See* Earthenware.

**Fan-lights.** *See* Windows.

**Fans.** *See* Blowing-engines.

**Fans (ladies'):**

India-rubber tools and surfaces for painting, Paget, 3773.

**Fare-registers.** *See* Registering.

**Fare-tables for cabs, &c.** *See* Sign.

**Farinas & farinaceous foods.** *See* Preserving food.

**Farriery.** *See* Horse-shoes.

**Fat.** *See* Oils (animal).

**Fatty acids.** *See* Acids.

**Faucets.** *See* Cocks.

**Feathers:**

Dyeing, Smith & Berry, 2327.
Cleaning, Lake (*Blake*), 2847.
Mounting or wiring, on their stems, Lewinsohn, 3417.

**Feed-apparatus (application not specified):**

Self-acting, for tools and machines, Bowker, 958.
Variable clutch mechanism for, Whitaker, 2676.
Pneumatic paper-feed, Newton (*Ashley & Ashley*), 4527.

**Feeding-bottles.** *See* Bottles.

**Feeding or suckling young animals:**

Test apparatus for, Brookes & Heppenstall, 2719.
Feed clutch for reciprocating machines, Imray, 3818.

**Feeding water to boilers.** *See* Steam-boilers.

**Felling timber.** *See* Plants and trees.

**Felt; felted fabrics:**

Flocking fabrics, Rhodes & Rhodes, 16.
Paper-felt or substitute for leather, wood, &c., Gandy, 53.
Curling felt hat brims, Lees & Pidgeon, 260.
Fabrics ("Victoria Melton"), Tavernier & Matheson, 361.
Producing mixed colors in, Tavernier & Matheson, 361.
Using alpaca noils in making, Tavernier & Matheson 361.

**Felt; felted fabrics—*cont.***

Substitute for, Gedge (*Gaudefroy*), 433.
Quilted fabric for coverings, Gedge (*Gaudefroy*), 434.
Stiffening and staining fabrics, Laycock, 572.
Joining edges of felt fabrics, James & Hamilton (*Keller*), 1322.
Fabric for felting purposes, Oldroyd & Blamires, 1427.
Washing, stiffening, and staining, Rhodes & others, 1511.
Perforated felt trimming for skirts, &c., Taylor, 1590.
Slipper or foot covering, Bailey, 2048.
Steam felting machine, Webster, 2256.
Obtaining fibres from wood, rags, &c. for making, Noad, 2493.
Producing, by interlacing fibres, Johnson (*Whipple*), 2623.
Making felt hats, Bywater & Buckley, 2837.
Producing fabrics from silk noil, Hebblethwaite, 2857.
Fabric for felting purposes, Oldroyd & Blamires, 2858.
Leatherizing felt, Kellogg, 3139.
Stretching felt hat bodies, Eaton & Eaton, 3266.
Bodies for railway carriage wheels, Clark, 3519.
Using sheet, for boots, leggings, &c., Vickers & Freestone, 3925.
Producing fabrics from silk noil, &c., Hebblethwaite, 4305.

**Fences:**

Solution for preserving wooden, Gedge (*Richard*), 2144.
Boring and cutting holes in posts for, McGillivray, 2246.

**Fern leaves (preserving).** *See* Plants.

**Fern stands.** *See* Flower stands.

**Ferric salts.** *See* Metallic salts.

**Ferries:**

For transporting goods and passenger trains, Monckton, 1884.
Landing stage for steam, Duckham, 2491.
Double ferry boats for conveying cattle, &c., Egerton, 4549.

**Ferro-manganese.** *See* Smelting.

**Ferrules:**

For umbrellas, walking-sticks, &c., Jones, 688.
Or caps for painters' and artists' brushes, Smith, 747.
For shafting picks, axes, adzes, &c., Brown, 863.
For sticks, umbrellas, &c., Mylchreest, 2082.
Joining edges of brush, Caddick, 2164.
Or bush for fitting boiler tubes, Walker (*Estienne*), 3810.

**Fertilisers.** *See* Manure.

**Fibres (oiling):**

Soap for lubricating wool, Green, 129.
Distributing oil in batching jute, &c., Freir, 584.
In batching and carding machines, Malcolm, 2339.
Soap for lubricating wool, Green, 3891.

**Fibres (opening, extracting grease from, cleaning):**

Soap for wool washing, Green, 129.
Distributing liquids in batching jute, &c., Freir, 584.
Cleaning or dressing and preparing machinery, Faren, 586.
Openers or scutchers, Buckley, 1111.
Destroying vegetable matters in wool & silk, Smith & Tolson, 1302.
Breaking, separating, and cleaning flax, &c., Davison, 1351.
Treating wool to prevent shrinking, curling, and felting, Behrens (*Caro*), 1868.
Balance for ascertaining loss of wool in weight by washing, Jensen (*Bockhacker*), 1962.
Apparatus for beating flax, &c., Edwards, 2013.
Flax and tow waste, Mewburn (*Lang & Desjardins*), 2018.
Combined breaking and scutching machine, Etrich, 2054.
Batching jute, &c. whilst passing to "card," Malcolm, 2339.
Opening and beating cotton, &c., Haseltine (*Kitson*), 2433.
Burring or cleaning, Barlow (*Saxon Machine Works*), 2445.
Washing and cleansing wool, Bartleet (*Chambers*), 2458.
Washing or scouring wool, Hughes (*Weiss*), 2480.
Obtaining fibres from wood, rags, &c., Noad, 2493.
Scouring or washing wool, &c., Messrs. Merrall, 2550.
Wool washing-machine, Messrs. Jefferson, 2587.
Combined flax scutching and hackling machine, Kleinen, 2878.
Extracting and recovering oil or grease from, Sykes, 2926.
Breaking & stripping hemp, flax, ramie, grass, &c., Cardon, 2949.
Preparing ramie, flax, &c., Coleman, 3072.
Scouring fibres, Copley & Jennings, 3141.
Intermediate cotton cleaner and carder, Clark (*Risler*), 3229.
Breaking, separating, and cleaning flax, &c., Davison, 3479.
Separating and cleansing, of epilobium hirsutum, Péaud, 3760.
Washing or scouring wool, &c., Whitehead & Wright, 3844.
Detergent salts for removing gum from silk, Way, 3876.
Detergent salts for washing wool, Way, 3876.
Soap for cleansing wool, Green, 3891.
Willeys or teazers, Birkhead, 3981.
Carbonising vegetable matter in wool, Alexander (*Michel*), 4088.
Washing wool in liquid hydro-carbons, Ford, 4168.
Scouring or washing wool, &c., Nichols, 4211.
Beaters for cotton openers, Lake (*Kitson & Stott*), 4429.

**Fibres (opening, &c.)—*cont.***

Hanging beater blades on shafts, Lake (*Kitson & Stott*), 4429.
Decorticating, softening, &c., Tongue (*Roland*), 4478.
Opening, cleaning, scutching, and lapping, Whitehead, 4538.

**Fibres (preservative treatment of):**

For making ropes, thread, &c., Clark (*Rogé & others*), 298.

**Fibres (treating for paper).** *See* Paper (making).

**Fictile-ware.** *See* Earthenware.

**Files and rasps:**

Producing steel for making, Clark (*Eyquem*), 256.
Machine for rasping, Brakell, 1393.
Rotary, for preparing articles to be soldered, Caddick, 2164.

**Filters; filtering; straining; clarifying:**

Purifying yeasts, Ellis, 69.
Purifying impure waters, sewage, &c., Mackay, 91.
And purifying heated air in hot-air stoves, Mackenzie, 98.
Sewage, dye, and polluted waters, Rydill, 150.
Distilling apparatus for marine boilers, Perkins, 224.
Carbonaceous filtering material, Weare & Isherwood, 324.
For clearing rain, ditch, and other water, Lambert, 369.
Filtering sewage, dye, and polluted waters, Rydill, 399.
Defecating saccharine solutions, Johnson (*Marot*), 406.
Filtering air for use in vinegar making, Pounsett, 447.
Using paper-stock for filtering, Outerson & Outerson, 538.
Or percolators with strainer and funnel, Gething, 564.
Clarifying mixtures for sewage, &c., Hallsworth & Bailes, 571.
For face shields or respirators, Sinclair, 597.
Using calcium-carbonate in, Morgan & Moelchaerek, 625.
Charcoal for filtering potable waters, Elcock, 807.
Tank filters; arranging filtering materials, Burney, 1028.
Utilising slag for water filters, Dähne, 1052.
Cistern, main service, portable, and household, Rawlings, 1063.
For filtering excreta and urine, Whitwham (*Bonnafin*), 1126.
Carbon, for purifying gas at burner or meter, Hellier, 1220.
Distilling sea water by aid of friction, &c., Fisher, 1239.
Filtering sewage, Morgan-Brown (*Harding & Johnson*), 1333.
Magnetic filtering blocks or slabs, Spencer, 1363.
Purifying tan gas, Murdoch (*Honnaij*), 1397.
For suction tube of tube wells, Jensen (*Schönlau*), 1463.
Sewage, to prevent pollution of rivers, Pape, 1625.
Compound for purifying sewage, Spence & Spence, 1704.
Distilling fresh water from sea water, Walker, 1886.
Filtering sewage, Coleman, 1954.
Aluminous cakes for purifying sewage, Spence & Spence, 1961.
Filtering sewage & house slops; powder for same, Wilks, 1972.
For household, army, and other uses, Crease, 2017.
Air, for air heating apparatus, Hughes (*Smith & Bates*), 2083.
Straining paper pulp, Cooke, 2156.
For decolorising sugar in solution, &c., Elwes, 2189.
Separating solids from liquids, Fryer & Alliott, 2235.
Purifying water by heat or precipitation, Macdonald, 2346.
Centrifugal sewage filter, Odams & Blackburn, 2356.
Ferruginous and animal charcoal for, Lyttle, 2406.
Filtering "slurry" in making cement "slips," Bowing, 2423.
Filtering and decolorising dye waters, Wollaston, 2521.
Filtering water from the washing of lead, Wollaston, 2521.
For filtering water, sewage, and other fluids, Graham, 2567.
Distilling machinery, Normandy, 2581.
Purifying impure waters and sewage, Hanson, 2673.
Purifying waste waters and sewage, Stevens, 2689.
Straining water from coagulated blood, Johnson (*Lissagaray*), 2848.
Purifying sewage and impure waters, Clark (*Bonnard*), 3142.
Applying filters to lubricators, Coux des Roseaux, 3202.
Sealing mouths of sugar filters, Soley (*Collinson*), 3269.
Strainers for pump suction pipes, &c., Dunstan, 3273.
Adjustable for water-supply apparatus, Newton, 3548.
Chemically purifying water, Durham, 3564.
Constructing and arranging water filters, Foster, 3671.
Applying, to smoke helmets & lanterns, Brewer (*Loeb*), 3701.
Filtering sewage, dye-waters, &c., Rawson & Slater, 3793.
Strainers for feed-water heaters, Taylor, 3892.
Automatic domestic, Thompson (*Clibborn*), 3963.
Filter presses with intersecting surfaces, Bowing, 3968.
Purifying and filtering apparatus, Le Tellier, 4061.
Filtering sewage and liquid refuse, Le Tellier, 4062.
Purifying air in brewing, Barlow (*Galland*), 4079.
Filtering excreta, residual products, &c., Wildsmith, 4168.
Or strainers for beer and other barrels, Hill, 4111.
Straining and filtering sewage, Bannehr, 4123.
Defecating saccharine products, Duncan & others, 4264.
Strainer apparatus for paper-making, Watson, 4271.
Purifying raw or impure sugar, Rowan, 4331.
Filtering reservoir, Morgan-Brown (*Midos & Chenoit*), 4342.
For filtering wort, beer, &c., Barlow (*Galland*), 4415.
Filters for purifying clear sewage, water, &c., Ramsay, 4457.
Condensers for obtaining fresh from salt water, Davie, 4449.

**Finials.** *See* Roofs.

**Finishing and dressing woven fabrics:**

Stiffening agent for ("apparature"), Scott (*Gerard*), 38.
Beetling machine fallers, Gartside & Bradbury, 158.
Producing "lamb skin" finish on wool fabrics, Fox & Fox, 809.
Softening fur-coated articles, Crosby (*Kellogg*), 824.
Pressing and ironing machines, Zysel & Warschawsky, 347.
Treating fabrics before beetling, Stark, 370.
Employing milling machines for stiffening, Laycock, 572.
Machine for stretching calico, &c., Mitchell & Mitchell, 1019.
Obtaining bloom on pile fabrics, Worrall, 1294.
Destroying burrs, &c. in woollen fabrics, Smith & Tolson, 1302.
Steaming apparatus, Smith, 1303.
Temples for use in stretching and, Wolstencroft, 1408.
Setting and giving lustre to braid, Rhodes & others, 1432.
Tentering, straightening, drying and, Newton (*Palmer*), 1457.
Giving elastic finish to fabrics, Newton (*Palmer*), 1457.
Stiffening woven and felted fabrics, Rhodes & others, 1511.
Singeing, Briggs & Stead, 1537.
Fixing and developing colors in, Clark (*Thierry-Mieg*), 1587.
Composition for stiffening and dressing, Lansdale, 1803.
Imparting "elastic finish" by stentering, Pollock, 1833.
Rotary metallic teasels, Fürth, 1860.
Treating woollen goods to prevent shrinking, curling, and [felting, Behrens (*Caro*), 1868.
Using maize flour for dressing, Clark (*Chiozza*), 2007.
Steaming apparatus, Stead & Appleyard, 2033.
Ageing or steaming woven or web fabrics, Jones, 2943.
Parementine for dressing, Barlow (*Torlotin*), 3015.
Foundation material for cards used in, Grether, 3249.
Raising nap or pile upon cloths and fabrics, Kempe, 3306.
Steaming and ageing woven fabrics, Knowles & Kay, 3328.
Beetles with hot plates & rollers, Breutnall & Raworth, 3425.
Without tenter hooks and gassing, Burlison & Whitaker, 3512.
Cylindrical apparatus for steaming fabrics, Holt, 3517.
Waxing, &c. velvets, velveteens, &c., Dutton & Renshaw, 3553.
Combination of washing, steaming and drying apparatus, [Schofield & others, 3570.
Papering, &c. fabrics for pressing, Walsh & Stead, 3571.
Plaiting, folding, and finishing fabrics, Rath, 3717.
Dressing "camelia silk," Mewburn (*Graissot*), 3787.
Cloth-dressing machine, Morgan-Brown (*Giacomini*), 3880.
Producing the "wave finish," Tattersfield, 3889.
Combining air and gas for singeing, Blanche, 4009.
Measuring and stretching shrunken goods, Willans, 4108.
Constructing and heating pressing apparatus, Pedder, 4421.
Raising nap upon cloths and fabrics, Kempe & Kempe, 4454.

**Finishing and dressing yarns and threads:**

Stiffening agent for ("apparature"), Scott (*Gerard*), 38.
Singeing yarns, Jagger & Jagger, 1142.
Setting and giving lustre to, Rhodes & others, 1432.
Singeing yarns, Briggs & Stead, 1537.
Composition for stiffening and dressing, Lansdale, 1803.
Preparing or finishing thread for sewing, Forster, 1930.
Drying and stretching hanks, Emsley & Smith, 2215.
Ageing or steaming yarns, Jones, 2943.
Fancy twine or cord, Waithman, 3109.
Applying size or color before polishing, Fergusson, 3379.
Steaming yarns or warps, Holt, 3517.
Cleaning and laying threads by friction, De Pass (*Imbs*), 3953.

**Finishing leather.** *See* Leather.

**Finishing or grinding.** *See* Grinding, polishing.

**Finishing paper.** *See* Paper-making.

**Fire-alarms.** *See* Signals (miscellaneous).

**Fire-arms; guns; ordnance; gun-carriages:**

Breech-mechanism of small-arms, Lee, 131.
Breech-loading drop-down guns, Scott, 186.
Fire-locks for the "Henry rifle," &c., Wirth (*Emmerich*), 193.
Contracting, &c. barrels of shot guns, Rigby & Scott, 312.
Breech-loading small-arms, Thayer, 454.
Breech-loading drop-down sporting guns, Jones, 510.
Side pieces or cheeks for revolver stocks, Dolne, 534.
Elastic breech plug for ordnance, Newton (*Felt*), 600.
Cannon, with corrugated breech, Newton (*Felt*), 600.
Suspending artillery platforms in equipoise, Chomel, 659.
Applying cartridge holders to, Newton (*Metcalf*), 771.
Mode of sighting rifled, Fennessy, 868.
False breech for rifles for room practice, &c., Morton, 880.
Using breech-loading shot gun as a rifle, Morton, 880.
Triple barrelled breech-loading, Alexander (*Lainé*), 921.
Lever for moving gun-carriages, Hughes (*Heshuysen*), 924.
Breech mechanism of falling block small-arms, Altman, 979.
Locking barrels in position for firing, Altman, 979.
Converting Restell's system and the Chassepot, Altman, 979.
Breech-loading guns ("horizontal balance"), Lomel, 1014.
Back sight for military rifles, Hill, 1093.
Equilibrium gun platform for war ships, Hiltbrunner, 1148.
Breech-loading drop-down guns, Williams, 1247.
Self-cocking breech-loading fowling pieces, &c., Hughes, 1290.
Finishing exterior of gun barrels by turning, Dyer, 1380.

**Fire-arms; guns; ordnance, &c.—*cont.***

Breech mechanism of needle-guns, Wirth (*Timmer*), 1377.
Sights for double-barrelled, Moncrieff & others, 1435.
Breech mechanism of small-arms, Hughes (*Whitney*), 1472.
Breech mechanism for rifles, guns & ordnance, Johnson, 1722.
Gun carriage wheels & axles, Newton (*Davis & others*), 1735.
Lock mechanism of drop-down guns, Anson & Deeley, 1756.
Fastening, &c. barrels of drop-down guns, Scott, 1902.
Shackles for gun-carriages, Ramsay (*Low*), 1956.
Breech block mechanism of small-arms, Grandjean, 1995.
Distributing recoil in heavy cannons, Whitworth, 2096.
Breech plug mechanism for cannon, Newton (*Davison*), 2106.
Plugs, tompions, or stoppers for, Farjon, 2115.
Constructing and working machine guns, Farwell, 2126.
Breech action of drop-down guns, Hollis, 2128.
Constructing and mounting ordnance, Longridge, 2167.
Avoiding longitudinal tensile strain, Longridge, 2167.
Igniting charge in breech-loading guns, Longridge, 2167.
Safety-plugs or stoppers for, Chataigneau, 2178.
Working and mounting heavy guns, Scott, 2232.
Panniers for and locking trigger in bolt guns, Greene, 2241.
Movable breech to contain charge in cannon, Punshon, 2260.
Safety-device for small-arms, Partridge, 2355.
Breech mechanism of breech-loading rifles, Rochaz, 2396.
Linear sighting apparatus for large and small, Rochaz, 2396.
Breech for revolvers, &c., De Pass (*Hénard*), 2500.
Instrument for gauging bores of gun-barrels, Allport, 2535.
Extractors for revolvers, Lake (*Remington & Sons*), 2579.
Sliding breech mechanism for drop-down guns, Riches, 2673.
Breech-mechanism of small-arms, Engel, 2704.
Breech mechanism for single and multi-barrelled, Ermen, 2722.
Mortars for projecting lines, &c. to vessels, Rogers & Anderson, [2755.
Guns or mortars for signalling, Rogers & Anderson, 2755.
Lock mechanism of "drop" guns or rifles, Needham, 2793.
Portable field battery, and break, &c. for same, Franzini, 2831.
Breech mechanism of small, Clark (*Delsarte & Le Bert*), 2876.
Vertical breech block mechanism of rifles, King, 2953.
Rifling, parabolically, Bousfield (*Rodolphe*), 2987.
Turning exteriors of cannons, Bousfield (*Rodolphe*), 2987.
Loading ordnance and working breech of same, Clark, 3038.
Gas check and ammunition tube for, Clark, 3038.
Rifling guns and small arms; expelling smoke, Clark, 3038.
Applying hand rests to carbines, pistols, &c., Burton, 3069.
Fixing guns to prevent recoil, Longsdon (*Krupp*), 3132.
Forming and mounting heavy ordnance, Longsdon (*Krupp*), [3132.
Shields and carriages for guns, Longsdon (*Krupp*), 3132.
Hydraulic brakes of gun-carriages, Longsdon (*Krupp*), 3134.
Checking recoil of naval guns, Longsdon (*Krupp*), 3134.
Locking mechanism, &c. of drop-down small-arms, Tranter, 3171.
Mitrailleur, Murdoch (*Stevens*), 3172.
Breech-loading hammerless and drop-down guns, Scott, 3223.
Battery or machine guns; feeding same, Mills (*Taylor*) 3472.
Lock mechanism of "drop" guns and safety device, Piel, 3549.
Hinged falling block guns for cavalry use, Swinburn, 3635.
Converting bolt guns into magazine guns, &c., Edge, 3643.
Trigger or trigger lever for bolt guns, Edge, 3643.
Strikers & bolt mechanism of drop-down guns, Walker, 3700.
Fastening fore ends of drop-down, Bardell & Blakemore, 3780.
Breech-action for military and sporting guns, Palmer, 3820.
Working and controlling guns, Clark (*Farcot & others*), 3845.
Back-sights for rifles, Hill, 3967.
Gun with projecting shaft in lieu of barrel, Dawson, 4045.
Gas check cup for breech-loading ordnance, Noble, 4161.
Locks and barrels of bolt guns, Newton (*Von Dreyse*), 4198.
Using smooth bore guns as rifles, Newton (*Von Dreyse*), 4198.
Magazine & single bolt guns, Morgan-Brown (*Hotchkiss*), 4220.
Mounting guns to avoid tensile strain, Longridge (*Longridge*), [4284.
Igniting charge in guns, Longridge (*Longridge*), 4284.
Recoil check for small-arms, Clark (*Miller*), 4345.
Top lever actions for breech-loaders, Jeffries, 4351.
Fluting or grooving barrels of sporting guns, Duncan, 4542.
Hammer mechanism, Duncan, 4542.

**Fire-bars.** *See* Furnaces. Fire-places.

**Fire-engines; extinguishing fire:**

Carbonic acid gas apparatus, Johnson (*Bassolas*), 138.
Fittings, for protecting ships, Chatwood, 155.
Stand post hydrant for, Blakeborough & Beck, 227.
In buildings and ships, by perforated pipes, Hainsworth, 239.
Dry carbonic acid gas apparatus for ships, &c., Weare, 252.
Fire annihilators to use water only, McEvoy, 270.
Automatic carbonic acid gas apparatus for, Blain, 278.
Steam, Schrebler, 477.
Guarding against and preventing fire in ships, Roberts, 585.
Igniting carbonic acid gas materials, Wallace & Tucker, 890.
Igniting chemical blocks or balls for, Wallace & Tucker, 890.
Discharging water by compressed air for, Ingram, 1161.
Steam, with rotating motion, Wirth (*Knaust*), 1359.
Steam fire-engine locomotive, Wirth (*Knaust*), 1641.
Portable vessels charged with liquefied gas, Caffall, 1655.
In buildings, ships, and coal pits, Caffall, 1655.

**Fire-engines; extinguishing fire—*cont.***

Double-acting force pump, Munro, 1762.
Direct-acting fire pump, Wallace, 1816.
In ships, Perceval, 1830.
Jet apparatus or pump for, Clark (*Worms de Romilly*), 1848.
Stop valve fire-cock or hydrant, Tylor, 1857.
Hydrants or fire-cocks, Chrimes, 2060.
Steam-boilers for, to prevent priming, Field, 2081.
Rotary hand and steam, Simmons, 2105.
Apparatus on the Giffard injector principle, Lacy, 2143.
In ships by carbonic acid and other gases, Cargill, 2274.
Mixing agents in "extinctors," &c., Brewer (*Loeb*), 2626.
Extension ladder for firemen, Stevens (*Gilchriest*), 2978.
Vessel and receiver for carbonic dioxide for, Adams, 3237.
Sealing tops of fire-extincteurs, Soley (*Collinson*), 3260.
Rotary steam fire-engine, Field, 3269.
Combined lift and force pump for, Rowe, 3287.
Fountain for extinguishing fires, Schildberg, 3359.
Pump for forcing gas for, McMinn, 3457.
Combined hydraulic apparatus for theatres, Brown, 3593.
Vertical boiler for steam, Barron, 3658.
Couplings for fire-hose, Macartney, 3833.
Couplings for fire-engine hose, Morgan-Brown (*Morse*), 3894.
Preventing draught in buildings, Clark (*Morrell*), 3923.
Preventing and extinguishing fire by steam, Neilson, 4231.
In buildings by carbonic acid gas, steam, &c., Hodson, 4240.
System of pipes, &c. for ships and buildings, Hall, 4468.

**Fire-escapes; saving life from fire:**

Face shields or respirators for firemen, &c., Sinclair, 597.
Respiratory apparatus, Abel (*Fayol*), 998.
Fitting, to outside of windows, Kennedy, 1176.
Chain ladders & apparatus combined, Fremion & Lazon, 3263.
Fitting to outside of windows, Kennedy, 3347.
Smoke helmet for firemen and others, Brewer (*Loeb*), 3701.
Dress for firemen and cloak for inmates, Jensen (*Ostberg*), 3958.
Automatic disengaging hook for, King, 4056.
Or helical break lowering apparatus, Holthausen, 4481.
Roller and rope apparatus usable as a, Pichler & Gardner, 4486.

**Fire-guards:**

Permanently connecting, to chimney piece, &c., Brown, 352.
Making, of hollow tubes for air; affixing same, Porter, 967.

**Fire-lighters.** *See* Fuel.

**Fire-places; stoves; ranges; kitcheners:**

Admitting air to, to save fuel and prevent smoke, Wavish, 39.
Detachable fire-basket for front of, to save fuel, Green, 44.
Hot-air stoves; dampers for same, Mackenzie, 93.
Fuel saving "Victoria cooking stove," Tomkins, 114.
Hot-air stoves, Howarth, 240.
For heating air for warming rooms, Doulton, 365.
Gas-cooking and boiling apparatus, Peacock & Rudkin, 590.
Kitchen ranges and hot-air stoves, for saving fuel, Lillie, 606.
Regulating supply of gas to stoves, Loebl, 614.
Gas-stoves for heating halls, lobbies, &c., Kelen, 721.
Stoves for heating water, generating steam, &c., George, 808.
Hot-air stoves convertible into close stoves, Kennard, 846.
Stove for heating ranges, conservatories, &c., Crichley, 859.
Increasing up draft from, and consuming smoke, Lowder, 1119.
Gas-stove, for boiling and heating, Southby, 1210.
Connecting gas stoves, &c. to burner nibs, Southby, 1211.
Combined ash-pan and cinder-sifter, Goldstein, 1261.
Gill stove and apparatus for heating, Goddard & Massey, 1358.
Petroleum or hydro-carbon cooking stoves, Wright, 1369.
Air heating stove for drying, Hall & Bainbridge, 1460.
Regulating draught and consuming smoke in, Russell, 1631.
Fire-bars and coal saving backs for, Dyer, 1651.
Supplying air to, for heating, cooking, &c., Landau, 1674.
Portable cooking stove and fire-basket, Dann (*Gervais*), 1741.
Lamps for small stoves, Louttit, 1815.
Gas-stoves, West, 1965.
Radiators for heating rooms, Hughes (*Smith & Bates*), 2083.
Promoting combustion in, Wawn & Willcox, 2340.
Smoke consuming stoves or grates and ranges, Day, 2357.
Gas-stove for cooking, heating, &c., Holmes (*Sharp*), 2387.
Hoods for ranges and kitcheners, Davey & Hutchison, 2420.
Convertible open or close ranges, Davey & Hutchison, 2420.
Stove for warming or ventilating, Rigby & Rigby, 2487.
For heating air for warming rooms, Shorland, 2566.
Ornaments for fire-stoves, Cadman, 2580.
Ventilating hood, &c. for cooking ranges & stoves, Lanyon, 2715.
Petroleum cooking stove with round burner, Lachmund, 2778.
Air-heating stoves & pipes for furnaces, Crossley, 2821.
Portable stove for heating greenhouses, &c., Gadsby, 2907.
Apparatus for holding wood, &c. in, Tomlinson, 2931.
Ash-pans with sliding drawer and cinder-sifter, Ezard, 3047.
Open stoves with air-heating chamber, Curtze, 3147.
Fitting cinder-sifting trays beneath, Curtze, 3147.
Stove or apparatus for heating rooms, &c., Looker, 3174.
Close or open kitchen ranges, Redmayne, 3200.
Foundry drying stoves for drying moulds, &c., Fisher, 3304.
Supplying air to petroleum warming stoves, Rohde, 3339.
Portable combined heating & lighting apparatus, Boyd, 3372.

**Fire-places; stoves; ranges; kitcheners—*cont.***

Ash-pan and cinder-sifter for, Poupard, 3381.
Heaters or "French fire logs," Lake (*Merchon*), 3387.
Movable, for automatic dutch-ovens, Lake (*Dejoy*), 3439.
Gas-stove for ventilating strong-rooms, Chatwood, 3624.
Utilising, &c. waste heat from stoves, and, Maw, 3649.
Drying & raising temperature of air, &c. in stoves, Maw, 3652.
Artificial hearthstones, Hall, 3712.
Fitting air chamber to cooking stoves, Waller, 3732.
Hot-air stove for warming buildings, Waller, 3732.
Generating gas in and for cooking stoves, Jackson, 3841.
American stoves; heating ovens of same, Dobbie & Forbes, 3877.
Feeding mechanism or apparatus for, Holmes & Walker, 4052.
Cooling wick tubes, &c. of petroleum stoves, McEvoy, 4067.
Grates or fuel economisers for, Atkinson & others, 4068.
Admitting air to, from external atmosphere, Wavish, 4106.
Oil-lamp stoves for cooking, heating, &c., Rippingille, 4137.
Revolving and sliding grates to heat adjoining rooms, Kirkby, [4254.
Hot-air stove for carriages, Bonneville (*Grandjean*), 4318.
Portable hot-air stove, Bonneville (*Grandjean*), 4319.
Providing, with gas consuming, &c. grate to save fuel, Burt, [4351.
Ironing stove for laundries; utilising waste heat, Taylor, 4398.
Oil-lamp for heating cooking stoves, Robins, 4437.
Hot-air stove for carriages, Bonneville (*Grandjean*), 4518.
Removeable fire-basket or grate-box for, Jensen (*Pütz*), 4538.

**Fire-places (furnace).** *See* Furnaces.

**Fire-proofing; rendering uninflammable:**

Making fireproof deposit vaults of slag, Luckenbach, 248.
Rendering contents of ships, &c. incombustible, Weare, 252.
Timber by means of tungstate of soda, Jones, 482.
Making shallow fire-proof flooring, Swarbrick, 491.
Receptacles for explosive compounds, &c., Chambers, 622.
Constructing fire-proof composite structures, Holt, 951.
Decorations of theatres, wood, &c., Wirth (*Kreittmayr*), 929.
Linen, dresses, and buildings, Wirth (*Kreittmayr*), 929.
Mixtures and process for, Wirth (*Kreittmayr*), 929.
Wood; solutions for same, Gardner, 1126.
Compressing salts for use in fire-proof safes, Hyatt, 1451.
Buildings and ships, Denniston, 1466.
Buildings, ships, safes, and strong rooms, Perceval, 1538.
Buildings, Hyatt, 2015.
Solutions for fire-proofing wood, Gedge (*Richard*), 2144.
Floors, roofs, and wood surfaces, Hyatt, 2339.
Illuminating roofs of buildings, Hyatt, 2357.
Safes, wardrobes, closets, &c., Hosmer (*Shepard*), 3469.
Roof foundations, roof rafters, and ceilings, Hyatt, 4063.

**Fire-screens.** *See* Screens.

**Fire-works:**

Apparatus for displaying, Brook, 247.
Compounds for saloon and theatre, Dittmar, 3063.

**Fish (preserving).** *See* Preserving food.

**Fishing:**

Fly catcher for, Fellinger (*Costa & Rinaldini*), 1536.
Electric submerged lamp for use in, Chauvin & others, 2429.
Weaving or forming fishing nets, Patrick, 2836.

**Fishing rails.** *See* Railways. Tramways.

**Flaps.** *See* Doors.

**Flasks.** *See* Bottles.

**Flasks or moulds.** *See* Casting metals.

**Flax.** *See* Fibres. Spinning.

**Flesh brushes or rubbers.** *See* Brushes.

**Fleshing skins.** *See* Leather.

**Floating breakwaters.** *See* Breakwaters.

**Floating docks.** *See* Docks.

**Floating lights.** *See* Lighthouses.

**Floating powders or dust (collecting):**

Vacuum process for, for "dust-food," &c., Hyatt, 2267.

**Flocking:**

Using milling machines for, fabrics, Rhodes & Rhodes, 16.
Cutting flocks or mungo for, Laycock, 779.
Cutting flocks, mungo, rags, waste, &c. for, Rhodes & others, 941.

**Flocks.** *See* Rags.

**Floodways.** *See* Traps for drains.

**Floor-cloth; coverings for floors:**
Compound material for covering, Fish, 9.
Preparing floor-cloths for printing, Nairn, 35.
Lattice framework covering for floors, Rideal, 113.
Fabric for, from silk noil and gum, Hebblethwaite, 2857.
Compound fabric or, Paton, 3119.
Vegetable leather suitable for, Tongue (*Jolissaint-Vonèche & others*), 3290.
Using intestines, &c. of animals in making, Macintosh, 4031.
Printing floor-cloths, Hummerston, 4134.
Fabric for, from silk noil, &c. and gum, Hebblethwaite, 4305.
Combined rubber material for and making, Dunbar & Lothrop, [4372.

**Flooring tiles.** *See* Tiles.

**Floors:**
Compound material for, and forming slabs for, Pope, 159.
Corrugated wrought iron plates for, Westwood & Baillie, 841.
An "asphaltic carpet" for forming, Gedge (*Gaudefroy*), 433.
Preserving boards from damp, Gedge (*Gaudefroy*), 433.
Making shallow fire-proof flooring, Swarbrick, 491.
Applying cements to and constructing, Ross, 830.
For cooling malt, &c., Mackay & Rae, 1073.
Heating drying floors by waste gases, Lockey, 1159.
Grooving slabs of slate for, Elwes, 1386.
For use in making sulphates, Hargreaves & Robinson, 1576.
Constructing fire-proof, Hyatt, 2015.
Forming with wood blocks, Copland, 2099.
Wire hurdle, for malt kilns, Wise (*Herrmann*), 2138.
Forming, of concrete slabs, Lascelles, 2151.
Constructing, as a protection against fire, Hyatt, 2359.
System of paving for, Davison & others, 2656.
For making ice on, Hughes (*Currie & Holzmann*), 2825.
Illuminating ornamental gratings for, Hyatt, 3357.
For prisons, jails, &c., Harris (*Cook & Heath*), 3375.
Applying magnets to, of hospitals, rooms, &c., Lyon, 3332.
Parquetry work for, Thornton & Thallon, 3632.
Illuminating fire-proof and flat arch, Hyatt, 4063
Ornamenting and coating with asphalt, Hyatt, 4063
Compound flooring for railway cars, &c., La Mothe, 4213.
Compound or material for, Wilkinson, 4267.

**Floors (skating rink).** *See* Games.

**Flour-mills.** *See* Grinding corn.

**Flower-pots; troughs; plant holders; seed-pans:**
Self-watering, &c. troughs, holders and, George, 1104.
Forming ornamental casings for, D'Humy, 1710.
Forming bottoms of flower-pots and seed-pans, Martin, 4459.

**Flowers, foliage, and fruit (artificial):**
Foliage of vulcanised india-rubber, Browne (*Ballin*), 1934.
Packing, for transport, Wise (*Dary*), 2139.
Printing in colors parts of, Roquencourt, 2305.
Making buds, &c. from india-rubber, &c., Clark (*Person*), 2318.
Mounting or wiring buds, grasses, &c., Lewinsohn, 3417.
Making calyx and polysepalus of moss roses, Burnier, 4333.

**Flowers (preserving).** *See* Plants.

**Flower-stands; fern-stands:**
Flower-stands for outside of windows, Kennedy, 1176.
Forming bottoms of fern-stands, Martin, 4459.

**Flues; chimneys; chimney-pots; cowls:**
For hot-air apparatus of buildings, Mackenzie, 93.
Arranging boiler, for supplying air, Abel (*Smith & Smith*), 244.
Welding, Hunt (*Flagler*), 290.
For heating air and regulating draft in stoves, Doulton, 365.
Producing a constant vacuum in chimneys, Atkins, 527.
Maintaining and regulating draft in chimneys, Turner, 545.
Arranging in ships for ventilation, &c., Roberts, 585.
For combined boilers and furnaces, Gidlow & Abbott, 655.
Hot-air, for steam-boilers, Anderson, 825.
Hot-air, for furnaces, Parkes, 841.
Flue-pipes for hot-air stoves, Kennard, 846.
Outlet, for glass furnaces, Paul & Sanderson, 898.
Arranging, in bakers' ovens, Jensen (*Dührkop*), 904.
Counterbalance or nonpareil chimney-pot, Hooper, 954.
For distributing heat in pottery kilns, Malpas, 1068.
Increasing draft and preventing fire in, Lowder, 1119.
Arranging, for ore reducing retorts, Larkin, 1125.
Air induction, for brick kilns, Haseltine (*Bingham*), 1182.
For horizontal steam-boilers, Blake, 1207.
Suction cowls for ventilating chimneys, Church, 1273.
Arranging air, in boiler furnaces, Buret de Longagne, 1316.
Chimney tops, Batt & Batt, 1325.
For drying and carbonising peat, &c., Hall & Bainbridge, 1460.
Arranging and keeping clean in steam-boilers, Apperly 1481.
Forming and fitting, in steam-boilers, Plant, 1539.
Chimney cowls, Catherall, 1544.
Hydro-chloric acid gas flues, Hargreaves & Robinson, 1576.

**Flues; chimneys; chimney-pots; cowls—*cont.***
Arranging, of multitubular boilers, Hessel (*Pregardan*), 1636.
Wind-guard, top, cap or cowl for, Landau, 1674.
Sweeping apparatus for chimneys and, Black, 1751.
Fixing scaffolding for erecting, &c. chimneys, Yeadon, 1907.
Arranging, in brick kilns, Corbett, 1920.
Forming smoke-flues of buildings zig-zag, Hyatt, 2015.
Ornamenting chimney tops, Hyatt, 2015.
Blower for preventing down-draught, 2015.
Arranging flues in salt evaporating furnaces, Bull, 2061.
Annular, for ovens, kilns, &c., Wood, 2076.
Air heating furnace flues, Hughes (*Smith & Bates*), 2083.
Arranging water pipes and coils in steam-boiler, Jolly, 2211.
Placing water chambers and pipes in steam-boiler, Reilly, 2213.
Arranging gas, for heating kilns, Batchelar, 2299.
Chimney cowls, Wawn & Willcox, 2340.
Arranging, in cooking stoves, Davey & Hutchison, 2420.
Chimney-pots, Knight, 2465.
Internal, for steam-boilers, Galloway & Holt, 2514.
Double, for puddling furnaces, Roberts & Noble, 2732.
Scraper for cleaning, Mayston, 2745.
Smoke and air, for buildings, Livesay, 2832.
Blast, for converters, Wedekind (*Witthöfft*), 2941.
Arranging, of saddle-boilers, McLaren, 3041.
For annealing boxes with fire-places, Tenwick, 3090.
Arranging metal furnace, Smyth, 3353.
Arranging, in brick and other kilns, Hall, 3365.
Connecting flue tubes with tube plates, Bourry, 3411.
Down draught, for hot-water boilers, Hartley & Sugden, 3511.
Strengthening, &c. steam-boiler, MacIlwaine & Lewis, 3524.
Expansion, &c. for steam-boilers, MacIlwaine & Lewis, 3524.
Flues for heating retorts or kilns, Thompson & Ladelle, 3535.
Preventing loss of and saving heat in, Maw, 3699.
Utilising waste heat from, for heating air, Maw, 3699.
Applying electricity to draft gauges, Pastorelli, 3706.
Increasing draft in chimneys, Tarrant, 3722.
For land and marine steam-boilers, Twibill, 3728.
Arranging descending, of hot-air stoves, Waller, 3732.
For gas retorts, Bennett, 3850.
Welding, flanching, and shaping steam-boiler, Plant, 3884.
For steam-boilers, Jensen (*Halsey & Deaderick*), 3994.
For air-heating and drying apparatus, Wright & Saul, 4029.
Boiler flue cleaner, Benson (*Crosby & McCabe*), 4032.
Forming zig-zag flues for buildings, Hyatt, 4063.
Gas and air, for brick and other kilns or ovens, Stone, 4451.

**Fluid-meters.** *See* Meters.

**Flushing drains and sewers.** *See* Drains.

**Flushing water-closets.** *See* Water-closets.

**Flutes.** *See* Musical instruments.

**Fluting.** *See* Goffering.

**Flyers (spinning machine).** *See* Spindles.

**Flying-machines.** *See* Aërial-machines.

**Fly-traps or cages.** *See* Insects.

**Fog-signals.** *See* Signals.

**Folding paper:**
In printing presses, MacDonald & Calverley, 611.
By an epicycloidal motion, Newton (*Campbell*), 2679.
Pasting and covering devices for book-folding machines, Lake [(*Chambers*), 2799.
In process of printing, Anthony & Taylor, 3056.
In printing machines, &c., Conquest (*Tucker*), 3105.

**Foliage (artificial).** *See* Flowers (artificial).

**Food for animals:**
Cutting, &c. bones for poultry food, Bradford, 727.
Cutting and paring edges of oil-cake, Dobson, 794.
Making wrappers for oil-cake presses, Eskrett, 1498.
Reducing sugar cane, maize, &c. for, Hunt (*Reynoso*), 1558.
Bran and germs, &c. from maize, Clark (*Chiozza*), 2007.
Making "water malt" & "malt cake," Fordred & Clarke, 2268.
Malt cake from Gladstone mixture, Fordred & Clarke, 2268.
Preparing medicated or other, Nicoll, 2348.
Using "germ meal" as cattle food, Muir, 2560.
Cattle food from vine refuse in making wine, Hely, 3098.
Ingredients for ("champion cattle cake"), Eagles, 3510.
Paring or trimming edges of oil-cake, Virtue, 4042.
For cattle, sheep, pigs, poultry, &c., Clark (*Barthe & Co.*), 4505.
Nutritive product or fodder meal, Clark (*Barthe & Co.*), 4505.

**Food for man.** *See* Preserving food.

**Foot-paths.** *See* Road-making.

**Footsteps and bolsters.** *See* Bearings.

**Foot-warmers:**

Combined with boots & shoes, Gedge (*Mondaje & Co.*), 2992.
Composition for burning in, Lake (*Cassinelli*), 3504.
Of paper for railway travelling, Loder, 3531.
For railway & tram-cars, &c., Bonneville (*Grandjean*), 4318.
Carriage and domestic, Bonneville (*Grandjean*), 4319.
For railway carriages, &c., Bonneville (*Grandjean*), 4510.

**Forcing air and gases.** *See* Air and gases. Blowing.

**Forcing water.** *See* Pumps. Fire-engines. Injectors.

**Forcing-houses.** *See* Greenhouses.

**Forcing-pits.** *See* Greenhouses.

**Forging, hammering, & welding metals; forges:**

Hydraulic apparatus for, Nussey & Leachman, 139.
Untapped nuts for screw-bolts, Marsden, 177.
Furnaces for heating blooms, &c., Perkins & Smellie, 218.
Flattening or shaping wire for cards, &c., Foxwell, 222.
Or pressing steel railway and other disc wheels, Edwards, 540.
Metal dies for jewellery, spoons, &c., Lake (*Champney*), 842.
Making cranks by bending under pressure, Clarke, 854.
Blank nuts, bolts, spikes, rivets, &c., Whittaker, 992.
Welding compound iron and steel rails, &c., Wilmart, 1085.
Swaging "hot pressed nuts," Abel (*Charles & McKain*), 1240.
Reheating furnace for, Howard & Bousfield, 1603.
Fan blowers, tuyeres, and portable forges, Gubbins, 1653.
Air-jet injector for forges, Clark (*Worms de Romilly*), 1848.
Moulds for forging tires, hoops, and rings, Carmont, 2403.
Or shaping bolts, hollow articles, &c., Smith & Woodrow, 2561.
Working "oliver" hammers, Davies & others, 2586.
Blank nuts, set screws, & untapped nuts, Davies & others, 2586.
Treating and utilising hammer scales, Sauvée (*Helson*), 2797.
Bearings for use in forges, Jones, 2822.
Welding boiler-tubes, Galloway & Beckwith, 2881.
Fashioning rails of continuous crossings, Williams, 2938.
Welding links, pipes, &c., Lake (*Pittsburgh Chain, &c. Co.*), [2973.
Tuyeres for smiths' forges or hearths, Reynolds, 3337.
Presses for squeezing, shingling, shaping and, Smyth, 3353.
Hammer or machine for forging or stamping, Hardisty, 3461.
Hydraulic machinery for stamping and, Fenby, 3584.
Stamping box-ends of plate springs, Holmes (*Porter*), 3781.
Welding and flanching boiler-tubes, shells, &c., Plant, 3884.
Welding or forming bosses & rims of railway wheels, Tough, [4496.

**Forks:**

Attaching handles to, Lee, 991.
Combined three pronged fork and spade, Griffin, 3402.

**Forks and knives.** *See* Knives.

**Foundations (excavating).** *See* Excavating.

**Fountains:**

Self-closing valves for, Wirth (*Knaust*), 439.
Pump or liquid ejector for, Plessner, 2534.
Ornamental and other portable, Schildberg, 3359.
Reversible, portable, or table, Clark (*Jouret*), 4461.

**Freezing.** *See* Refrigerators.

**French fire-logs.** *See* Fire-places.

**Fringes.** *See* Trimmings.

**Frisettes.** *See* Hair-dressing.

**Fruit & flowers (artificial).** *See* Flowers (artificial).

**Fruit dishes.** *See* Dishes.

**Fruit (gathering).** *See* Garden implements.

**Fruit-houses.** *See* Greenhouses.

**Fruits (drying).** *See* Drying.

**Fruits (preserving).** *See* Preserving food.

**Fruits (press for squeezing).** *See* Presses.

**Fuel (artificial, solid, and compound):**

Treating peat, &c. for, and making blocks of, Wilkinson, 60.
Using "sludge" from paper and fibre mills as, Mackay, 91.
From peat and coal dust, Morgan-Brown (*Verdier*), 654.
Using powdered rosin, &c. in making, Richards (*Packer*), 739.
Consolidated coal, Danvers & Landon, 897.
Waterproof and smokeless, from small coal, &c., Radeke, 1027.
Carbonised tan, Murdoch (*Honnaij*), 1397.
Preparing, moulding, and pressing, Kinsey, 1442.
Compound for, & consolidating small coal, &c., Kingsford, 1458.
Agglomerating small coal, &c., Deere, 1680.

**Fuel (artificial, solid, and compound)—*cont.***

Grinding, kneading, curing, &c. peat for, Lake (*Dodge*), 1726.
From small coal, coke, &c. and magnesia, Geary, 1[illegible].
From coal dust mixed with peat, tar, & river deposit, Hes, 2573.
Using sugar cane trash as, Johnson (*Mignon & Rouart*), 2[illegible].
Utilising & applying sawdust, shavings, &c., as, Hodson, 2[illegible].
Drying, heating, & mixing materials in making, James, 3171.
Using sugar cane trash as, Allport (*Expeut*), 3463.
Compound for warming carriages, Lake (*Cassinelli*), 3504.
From asphalt, clay, and coal dust, Lake (*McPherson*), 3[illegible].
Moulding, for storing, &c., Marriott, 3636.
Residue in treating sea-wrack, Alexander (*Herland*), 3651.
Moulding, from fine dross coal, &c., Brownhill, 4015.
Compound for fuel blocks, Wilkinson, 4267.
From bituminous & anthracite coal, Harries & Redford, 4[illegible].

**Fuel (fire-lighters):**

Coating coal, coke, &c. with resin, &c. for, Lake (*Silcox*), 5.
Forming triangular, square, and other shaped, Rathven, 5[illegible].
Making up, in "stool-like" form, Pinchbeck, 669.
Quadrant shaped wood, Noad, 1067.
Gas-torch for lighting fires, Hogg, 1172.
Working wood for making, Pinchbeck, 1696.
Making wood, and igniting composition for same, Sawyer, 1713.
Cutting "fire-wood," Newcomb & Newcomb, 1893.
Combined splints dipped in rosin, Whittaker & Poole, 2[illegible].
Cutting wood and arranging same for, Holmes, 2[illegible].
Crossing and pegging sticks of wood for, Denne, 2541.
Combined air and gas apparatus for lighting fires, Riley, 2[illegible].
Splitting or cleaving and bundling wood, Rowley, 2[illegible].
Machine for bundling fire wood, Lackersteen, 2[illegible].
Wooden blocks with draught flues, Browne (*Husbands*), 2[illegible].
Of turf, peat, or bog combined with oil, rosin, tar, &c., Cob- [3[illegible].

**Fuel (gaseous):**

Distilling, from fine coal dust, Fyfe & Bowers, 101.
Using blast furnace gases as heating fuel, Lyttle, 105.
Carburetted air or gas, Ross, 197.
Combined steam and oil vapor for furnaces, Marchant, 304.
Carburetted air or gas, Speir & Mather, 622.
Producing, for heating furnaces, Stirling & Peacock, 1224.
Carburetted foul gas or vapour, Lake (*Turner*), 2044.
Producing, for heating furnaces, Stirling & Peacock, 3476.
Retort for producing, Lyttle, 3579.

**Fuel (saving).** *See* Fire-places. Furnaces. Ovens. [Steam-boilers, &c.

**Fulling or milling:**

Using milling machines for flocking, Rhodes & Rhodes, 16.
Making soaps for milling, Green, 129.
Forming parts of milling machines, Webster, 459.
Double-acting or compound machine for, Healing, 5[illegible].
Arranging rollers, &c. in machines for, Austin & Austin, 9[illegible].
Steam fulling and milling machines, Webster, 2356.
Mills for, Clark (*Lodge*), 2520.

**Fumigating:**

Substances to be preserved, Lake (*Mc Clintock*), 267.
Sewage and noxious gases to deodorise same, Gill, 2[illegible].
Sewage, noxious gases, &c. to deodorise same, Gill, 2631.

**Furnaces and cupolas (metallurgical):**

Lining and working rotating and other, Siemens, 43.
Arranging regenerative gas, Siemens, 43.
Tapping cast steel into ingot moulds, Siemens, 43.
Cupola or blast and reducing; fire-bars for same, Lyttle, 1[illegible].
Cooling cylinders for; utilising gases; supplying air, Lyttle, 1[illegible].
Ascertaining temperature of hot blasts in, Main, 127.
Cupola or blast, in two parts, Willans, 157.
Reverberatory, heating, & puddling, Perkins & Smellie, 218.
Supplying heated air to; saving fuel in, Perkins & Smellie, 218.
Combining reducing, with puddling, &c., Wigg & Kennedy, 514.
Utilising gases & heat from puddling, &c., Wigg & Kennedy, 514.
Fire-bars for saving fuel, &c., Rees & Gardner, 3[illegible].
Blowing engine for blast, Stevenson, 387.
Constructing, supplying hot-air to, and charging, Ure, 4[illegible].
Using waste heat from puddling, Middleton & Hayward, 4[illegible].
For melting, puddling, refining, &c., Middleton & Hayward, 4[illegible].
Supplying air to, to prevent smoke and save fuel, Wood, 5[illegible].
Cooling rotating annular beds of puddling, Schofield, 511.
For roasting ores and other materials, Schofield, 511.
For calcining or roasting ores, Milburn & Jackson, 518.
Arranging steam-boilers with, Gidlow & Abbott, 653.
Admitting air to, to consume smoke, Gidlow & Abbott, 653.
Discharging calcined ores from, Hall, 731.
Self-acting process of lining revolving, Crampton, 789.
Supplying powdered fuel to, Crampton, 789.
Wearing rings, water cases, &c. of revolving, Crampton, 7[illegible].
Utilising waste heat in compound, Parkes, 841.
Generator and hot air reticulations and bridge for, Parkes, 8[illegible].
Mechanical puddlers, Stoker, 847.

## Furnaces and cupolas (metallurgical)—*cont.*

Revolving grate bottom for puddling and heating, Kirk, 885.
Feeding fuel and air to and consuming smoke in, Kirk, 885.
For distilling volatile metals, Newton (*Berrens*), 894.
Rotary puddling; supplying water to same, Jones & Jones, 956.
Forming hearths of puddling, of tap-cinder, Inns, 1005.
Removing slag or scoria from, Bodmer & Bodmer, 1054.
Or gas producer for, Larkin, 1125.
For roasting ores: utilising gases from same, Lockey, 1159.
Heating gas retorts in flues of, Stirling & Peacock, 1224.
Utilising waste heat in, and heating, Stirling & Peacock, 1224.
For roasting sulphurous ores, Kuhlmann, 1265.
Puddling machine; driving same, Clough & Ridealgh, 1321.
System of petroleum burners for heating, Jacquet, 1380.
For melting brass or cast iron, &c., Russell, 1445.
Hot-blast, for saving fuel, Newton (*Stephens & Moller*), 1482.
For melting, reheating, and roasting, Howard & Bousfield, 1603.
Direct-acting pump for blast, Wallace, 1816.
Air or steam jet injector for, Clark (*Worms de Romilly*), 1848.
Combined melting, refining, and puddling, Middleton, 1881.
Casting hollow revolving fire-bars, Tongue (*Zegut*), 1978.
Smelting, puddling, & heating, Lake (*Rogers*), 2045.
Applying heat in, by jets of gas and heated air, Cowper, 2123.
For heating lengths of metal, Hill, 2454.
Composition for parts of, Haseltine (*Grasser*), 2467.
For casting under pressure, Haseltine (*Grasser*), 2467.
Heating air in and for, to consume smoke, Clark, 2474.
Rotary air-blower for, Patrick, 2499.
For calcining and treating ores, Barnard, 2512.
For annealing wire and strips of metal, Smith & Smith, 2546.
Cooling bottom plates of puddling, Roberts & Noble, 2732.
Working puddling, with double draft, Roberts & Noble, 2732.
Stoppers for plugging holes in smelting, Melling, 2734.
Stoves & pipes for heating air for blast, Crossley, 2821.
Gas furnace for use with, Wedekind (*Bülowius*), 3084.
For burning waste gases, Wedekind (*Bülowius*), 3084.
Bars for fire-places of annealing ovens, Tenwick, 3090.
Saving fuel in and feeding, Longsdon (*Krupp*), 3133.
Heating air in and supplying it to, Longsdon (*Krupp*), 3133.
Mechanical puddling, Christy (*Pernot*), 3150.
Rakes for drawing puddled balls, Christy (*Pernot*), 3150.
Feeding & burning hydro-carbons in, Borland (*Borland*), 3178.
Feeding hoppers for mechanical stokers, McDougall, 3256.
Movable fire-bars for, McDougall, 3256.
Combined revolving reducing furnace, calciner, &c., Cramp-[ton, 3282.
Utilising waste gases from, for heating, Crampton, 3282.
Combined arrangement of, with movable bottoms, &c., [Smyth, 3353.
Heating, by waste gases, Smyth, 3353.
Fettling or lining for puddling, Messrs. Raine, 3433.
Bottom for mill furnaces, Messrs. Raine, 3433.
Heating gas retorts in flues of, Stirling & Peacock, 3436.
Utilising waste heat in, and heating, Stirling & Peacock, 3436.
Rotatory puddling, with water chambers, Jones & Jones, 3603.
Utilising, economising, &c. waste heat in, Maw, 3699.
Drying & raising temperature of air and gases in, Maw, 3699.
Hot-blast apparatus for, Maw 3699.
Heating air for and admitting same to, Stone, 3705.
Producing finely powdered coal for burning in, Ferry, 3714.
Preserving lining of rotary puddling, Bell, 3778.
Cupolas with moveable bottoms, Birkby, 3792.
Mechanical puddling apparatus for, Espinasse, 3806.
Heating blast for, by furnace itself, Espinasse, 3806.
Generating gas for heating, Jackson, 3841.
For heating flanches of boiler rings for welding, Plant, 3884.
Puddling; regulating combustion in same, Casson, 3896.
Fettling puddling, Trick & others, 3909.
Steam blowing apparatus for, Cornforth & others, 3944.
Feeding mechanism or apparatus for, Holmes & Walker, 4039.
Tipping wheel-barrow for blast, Johnson (*Philippe*), 4157.
Using blast furnace gases in making steel, Bromilow, 4182.
For refining or steel making; working same, Bromilow, 4182.
Burning air-gas and liquid fuel in, Walker (*De Bergue*), 4241.
Nozzles for spraying oil in, Walker (*De Bergue*), 4241.
Expansion joint for tubular fire-bars, Ellis, 4309.
Supplying heated air mixed with steam to, Preiswerk, 4324.
For roasting precious ores, Newton (*Fryer*), 4369.
Gas, for refining, puddling, & melting, Godfrey & Howson, 4414.
Joints of rotary puddling, Johnson (*Sellers & Sellers*), 4415.
Fire-basket or grate-box for puddling, Jensen (*Pütz*), 4538.

## Furnaces (miscellaneous):

Admitting air to, to save fuel and prevent smoke, Wavish, 39.
Consuming smoke and saving fuel in, Milner, 51.
For hydro-pneumatic motors, Fisher & Rutherford, 56.
For warming buildings by hot-air, Mackenzie, 93.
Forming tank end of glass furnace cupolas, Scott, 128.
For melting down materials, Willans, 157.
Fire-bars of separate pieces or sections, Newbold, 267.
Burning combined steam and oil vapor in, Marchant, 304.
Superheating steam for & consuming gases in, Marchant, 304.
Returning exhausted products to fire of, Marchant, 304.
For water heaters, Lake (*Farris*), 310.
For hot-water and other boilers, Ormson, 317.

## Furnaces (miscellaneous)—*cont.*

Fire-bars for saving fuel, &c., Rees & Gardner, 320.
For carbonising materials, Weare & Isherwood, 326.
Feeding and burning crude oils in, Clark (*Robinson*), 338.
Tank furnaces for melting glass, Sheffield, 411.
Mechanical stoker; fire-bars and pokers, Smith, 466.
Movable bars and vibrating same, Lake (*Larkin*), 472.
Supplying air to, to prevent smoke and save fuel, Wood, 508.
Stirring apparatus for alkali, Schofield, 511.
For calcining soda-ash, salts, &c., Milburn & Jackson, 518.
Combined gas making furnace & steam generator, Kidd, 531.
Mechanical stoking apparatus, Donald, 532.
Combined steam-boiler and confectionery furnace, Brown, 549.
Hollow dead-plates, water circulating bars, &c., Taylor, 607.
Grate-bars for, Ibbotson (*Holt*), 638.
Fire-bars and fire-doors; regulating air-supply, Annan, 809.
Generator and hot-air reticulations and bridge for, Parkes, 841.
Supplying air to consume smoke and save fuel, Ruck, 877.
Revolving grate bottoms; feeding fuel and air to, Kirk, 885.
Tank, for glass bottle makers, Paul & Sanderson, 898.
Arranging heat absorbing bricks in, Mease, 977.
Regenerative, for making sulphates, Mease, 977.
Movable, for pottery kilns or ovens, Malpas, 1064.
For cokeing or destructive distillation, Nicholas, 1116.
Supplying hot-air to, to save fuel & consume smoke, Elson, 1138.
For heating lime kilns and gas retorts, Lockey, 1159.
Using gases from, for evaporating purposes, Lockey, 1159.
Constructing and working bars, Ramsden, 1160.
Brick kiln, for consuming gases, Haseltine (*Bingham*), 1182.
Heating gas retorts in flues of, Stirling & Peacock, 1224.
Utilising waste heat in, and heating, Stirling & Peacock, 1224.
Bridges and walls of tank, for glass making, Cartwright, 1243.
Without grates for treating sulphates, Kuhlmann, 1265.
For concentrating soda lyes, Kuhlmann, 1265.
For cokeing peat, Conradi (*Kesseler*), 1301.
For tempering flat and shaped glass, Huch, 1336.
Tank, for smelting glass, Macvay, 1350.
System of petroleum burners for heating, Jacquet, 1380.
For treating spent tan, Murdoch (*Honnaij*), 1397.
For heating air for carbonising, Hall & Bainbridge, 1460.
Actuating fire-bars in, for stirring fuel, Henderson, 1529.
For heating air or other gases, Abel (*Mathian & Solet*), 1545.
Regenerative gas tank, for melting glass, Siemens, 1551.
Fire-bars; heating air in and for, Erskine, 1574.
Consuming smoke and saving fuel in, Erskine, 1574.
Rocking or oscillating grate for, Newton (*Carré*), 1634.
For coking coal and utilising the heat, Newton (*Carré*), 1634.
Muffles, &c. for hardening glass articles, Siemens, 1637.
Supplying air to, for heating purposes, Landau, 1674.
Arch for protecting bars in salt pan and other, Newbold, 1698.
For use in distilling sulphur, &c., Ross, 1807.
Air or steam jet injector for, Clark (*Worms de Romilly*), 1848.
For calcining sulphates and carbonates, Jones & Walsh, 1864.
Bars for preventing adhesion of clinkers, &c., Smith, 1892.
Bars pierced with air holes for, Dobson, 1912.
Casting hollow revolving fire-bars, Tongue (*Zegut*), 1978.
Bars for, to admit uniform supply of air, Richardson, 1985.
Grate-bars for, Toop (*Toops*), 2050.
For heating salt pans, Bull, 2061.
For annular ovens, kilns, &c., Wood, 2076.
Air heating, with isolated grate, Hughes (*Smith & Bates*), 2083.
Compound rotative fire-bars for, Gibson & Forbes, 2111.
For tempering flat and shaped glass, Royer de la Bastie, 2157.
Consuming smoke and saving fuel in, Gedge (*Dubois*), 2175.
Regenerative gas, Wright, 2270.
For heating and drying, with fire-box at each end, Hill, 2454.
Rotary air-blower for, Patrick, 2499.
Regulating dampers for gas retorts, Birrell, 2604.
For distilling sea-wrack, &c., Dufrené (*Glaisot frères*), 2815.
Feeding fuel forward in, to prevent clinkers, Wilson, 2841.
Self-acting feed apparatus; hollow grate-bars, Wilson, 2841.
Arranging, for heating salt pans, &c., Lockey, 2882.
Sliding fire-bars and air conducting box for, Sawyer, 2894.
Smoke consuming and inodorous evaporating, Rabot, 2925.
Gas, for heating crucibles, &c., Fletcher, 2927.
Air heating, for engine cylinder jackets, Dixwell, 2934.
Saving fuel and consuming smoke in, Messrs. Farrar, 2967.
Hollow fire-bars for heating air for, Hzard, 3068.
Gas, for puddling furnaces, &c., Wedekind (*Bülowius*), 3084.
Revolving drum grates; feeding same, Lake (*Schaw*), 3142.
Forming, &c. tank ends of glass furnaces, King & Little, 3154.
For producing carbonic oxide, &c., Spence (*Lefebvre & Co.*), [3164.
Feeding & burning hydro-carbons in, Borland (*Borland*), 3178.
Feeding hoppers for mechanical stokers, McDougall, 3256.
Movable fire-bars for, McDougall, 3256.
Drying oil, Monckton, 3307.
Cooling bridge of tank glass, Cowper, 3350.
Heating gas retorts in flues of, Stirling & Peacock, 3436.
Utilising waste heat in, and heating, Stirling & Peacock, 3436.
Revolving, ball and other, Carrick & Wardale, 3458.
Converting flues into reverberatory, Thompson & Ladelle, 3535.
Bearing and rocking bars for, Snowdon, 3555.
For lime and cement kilns, Mumford, 3665.
Utilising, economising, &c. waste heat in, Maw, 3699.
Drying and raising temperature of air and gases in, Maw, 3699.

**Furnaces (miscellaneous)**—*cont.*

Heating air for, and admitting same to, Stone, 3705.
For carbonising and distilling, Johnson (*Huyard*), 3759.
Bearers for fire-bars; rocking same, Holt & Schofield, 3840.
For making gases for tanning, Clark (*Delhort*), 3911.
Grates for retort, for discharging residues, Bennie, 3934.
For heating air for warming and drying, Wright & Saul, 4029.
Feeding mechanism or apparatus for, Holmes & Walker, 4039.
Burning oil floating in tanks, Jennings (*Qvist*), 4092.
Fire-bars and carrying bars for same, Finlay, 4185.
Reducing smoke in, Finlay, 4186.
For evaporating pans, Bull, 4200.
Burning air-gas and liquid fuel in, Walker (*De Bergue*), 4241.
Nozzles for spraying oil in, Walker (*De Bergue*), 4241.
Forcing air both under and over fuel in, Kidd, 4257.
For melting materials in making glass, Scott, 4263.
Expansion joint for tubular fire-bars, Ellis, 4309.
Movable fire-bars and automatic feed for, Morgan, 4388.
Obtaining slow up & down movement of doors, Morgan, 4388.
For rectangular horticultural boilers, Wright, 4419.
Regulating heat in soda-ash and other, Riley, 4530.

**Furnaces (steam-boiler):**

Consuming smoke and saving fuel in, Milner, 54.
Differential damper regulator, Boyman, 67.
Nut and stop for fusible plug of fire-box crown, Clark, 80.
For burning moist ligneous residues, Serrière, 242.
For elephant boiler arrangement, Abel (*Smith & Smith*), 244.
Burning combined steam and oil vapor in, Marchant, 304.
Superheating steam for, & consuming gases in, Marchant, 304.
Returning exhausted products to fire of, Marchant, 304.
Water circulating grate, fire-bars, &c., Lake (*Farris*), 310.
Indicating leakage in water grate-bars, &c., Lake (*Farris*), 310.
Fire-bars for saving fuel, &c., Rees & Gardner, 320.
Feeding and burning crude oils in, Clark (*Robinson*), 333.
Mechanical stoker; fire-bars and pokers, Smith, 468.
Supplying air to, to prevent smoke and save fuel, Wood, 508.
Arranging self-stoking, Vicars & others, 529.
Mechanical stoking apparatus, Donald, 532.
Cylindrical internal fire-box, Pieper (*Kaselowsky*), 535.
Indicator for regulating supply of oxygen to, Bailey, 539.
Working self-acting stokers for dust fuel, Bailey, 539.
For boilers used in making confections, Brown, 549.
Hollow dead-plates, water circulating bars, &c., Taylor, 607.
Grate-bars for, Ibbotson (*Holt*), 638.
Fire-bars and fire-doors; regulating air-supply, Annan, 809.
Generator and hot-air reticulations and bridge for, Parkes, 841.
Supplying air to consume smoke and save fuel, Ruck, 877.
Revolving grate bottoms; feeding fuel and air to, Kirk, 885.
Outer casing or setting of, Dickinson & Mace, 932.
Arranging water tubes in fire-box, Alison, 957.
Supplying air to, and consuming smoke in, Ward, 1133.
Supplying hot-air to save fuel and consume smoke, Elson, 1138.
Making crown stays of fire-box of water tubes, Blake, 1207.
Heating gas retorts in flues of, Stirling & Peacock, 1224.
Utilising waste heat in, and heating, Stirling & Peacock, 1224.
Without grates, Kuhlmann, 1265.
Feeding, water fire-bars for, and driving, Butterworth, 1286.
Mechanical stoking machine, Bennis, 1308.
Smoke consuming, Buret de Longagne, 1316.
System of petroleum burners for heating, Jacquet, 1380.
For tram-car locomotives, &c., Merryweather & others, 1513.
Deadening fire; regulating draft, Merryweather & others, 1513.
Actuating fire-bars in, for stirring fuel, Henderson, 1529.
Internal, for vertical boilers and to save fuel, Hedges, 1536.
Fire-bars; heating air in and for, Erskine, 1574.
Consuming smoke and saving fuel in, Erskine, 1574.
Rocking or oscillating grate for, Newton (*Carré*), 1634.
Arranging multitubular boiler, Hessel (*Prigardan*), 1636.
Ash-boxes to regulate draft to, Wirth (*Knaust*), 1641.
Atmospheric gas, &c.; regulating heat in same, Courtenay, 1646.
Arch and rake for, to save fuel, &c., Newbold, 1698.
Arranging superheaters in, and to save fuel, Trossin, 1700.
Arranging and feeding fuel to, Martindale, 1721.
Dampers for regulating combustion in, Madden, 1779.
Automatic self-clinking fire-bars, Cornish, 1789.
Balanced fire-grates; consuming smoke in, Cornish, 1789.
Heating air in and supplying it to, to save fuel, Cornish, 1789.
Increasing heating surface in, Cornish, 1789.
Air or steam jet injector for, Clark (*Worms de Romilly*), 1848.
Feeding, &c. air and powdered fuel, Simpson (*Stevenson*), 1883.
Lining for combustion chamber, Simpson (*Stevenson*), 1883.
Fire and bearing bars and ash-pans for locomotive, Dunn, 1926.
Supplying air to, to consume smoke and save fuel, Dunn, 1926.
Casting hollow revolving fire-bars, Tongue (*Zegut*), 1978.
Bars for, to admit uniform supply of air, Richardson, 1985.
Self-acting fuel feeding apparatus, Proctor, 2017.
Grate-bars for, Toop (*Toope*), 2050.
Supplying air-gas and petroleum to, Walker (*De Bergue*), 2100.
For drying, decomposing, &c. steam, Buret de Longagne, 2107.
Compound rotative fire-bars for, Gibson & Forbes, 2111.
Heating and supplying air to, Alexander (*Rowan*), 2154.
Consuming smoke and saving fuel in, Gedge (*Dubois*), 2175.
Arranging, with two grates, Gedge (*Dubois*), 2175.
Supplying heated air mixed with steam to, Preiswerk, 2184.
Air supplying to steam tram-car, Barclay, 2201.

**Furnaces (steam-boiler)**—*cont.*

Supplying air to, to prevent smoke and save fuel, Jolly, 2211.
Arranging tubes, plates, and coils in lieu of bars, Jolly, 2211.
Arranging water tubes and fire-bars in locomotive, Jolly, 2211.
Tubular coil for marine, in lieu of fire-bars, Jolly, 2211.
Rocking fire-bars for, Coste (*Gouget*), 2246.
Grate-bars for, Hughes (*Smith & Breer*), 2262.
Heating air in and for, to consume smoke, Clark, 2474.
Heating air for, in condensing the exhaust, Packman, 2574.
Fronts of, to facilitate feeding, &c., Mace & Cary, 2589.
Operating dampers of, by boiler pressure, Birrell, 2594.
Consuming smoke in, Singleton, 2652.
Reverberatory, for stationary, Renshaw (*Renshaw*), 2696.
Supplying heated air to, Renshaw (*Renshaw*), 2696.
Heating air in, for drying hops, &c., Baker & Forbes, 2766.
Feeding fuel forward in, to prevent clinkers, Wilson, 2841.
Self-acting feed apparatus; hollow grate-bars, Wilson, 2841.
Arranging ordinary, with kiln, &c., Lockey, 2882.
Sliding fire-bars and air conducting box for, Sawyer, 2894.
Saving fuel and consuming smoke in, Messrs. Farrar, 2967.
Cylindrical, for rotary engines, Weyhe, 3012.
Feeding and burning sawdust, shavings, &c. in, Hodson, 3078.
Water circulating fire-bars; bearers for same, Ellis, 3123.
Saving fuel in and feeding, Longsden (*Krupp*), 3133.
Heating air in and supplying it to, Longsdon (*Krupp*), 3133.
Revolving drum grates; feeding same, Lake (*Sohaes*), 3142.
Regulating supply and distribution of fuel in, Newton, 3167.
Fitting, &c. pipes in, to consume smoke & save fuel, Mills, 3176.
Feeding & burning hydro-carbons in, Borland (*Borland*), 3178.
Feeding hoppers for mechanical stokers, McDougall, 3234.
Movable fire-bars for, McDougall, 3256.
Consuming smoke and heating feed-water in, Amory, 3284.
Burning saw-dust, &c. in locomotive & other, Marshall, 3292.
Preventing fracture of fire-box stays, Clark, 3296.
Gas-producing, for tubular boilers, &c., Imray (*Durfee*), 3317.
For burning slack, sawdust, peat, &c., Imray (*Durfee*), 3317.
Utilising waste heat in, and heating, Stirling & Peacock, 3424.
Heating gas retorts in flues of, Stirling & Peacock, 3424.
Arranging water tubes in & consuming smoke, Gedge (*Dufour*). [3448.
Bearing and rocking bars for, Snowdon, 3553.
Conical fire-boxes for vertical boilers, Barron, 3658.
Fire-boxes of vertical boilers, Matthews, 3696.
Utilising, economising, &c. waste heat in, Maw, 3698.
Drying and raising temperature of air and gases in, Maw, 3699.
Heating air for, and admitting same to, Stone, 3705.
Inserting water tubes in, Okes, 3713.
Consuming smoke in, Twibill, 3728.
Regulating air-supply, &c. to, Newton (*Verdié*), 3771.
Heating and re-using hot gases in, Newton (*Verdié*), 3771.
Introducing and drying damp fuel, Newton (*Verdié*), 3771.
Arranging cross water tubes in fire-box, Lockwood, 3776.
Continuous water grate for heating feed, Lockwood, 3776.
Bearers for fire-bars; rocking same, Holt & Schofield, 3840.
Constructing, with retort for making gas, Jackson, 3841.
Returning cinders from spark arresters to, Clarke (*Proctor*). [4012.
Increasing combustion in, Clarke (*Proctor*), 4012.
Feeding mechanism or apparatus for, Holmes & Walker, 4039.
Burning oil floating in tanks, Jennings (*Qvist*), 4092.
Consuming waste gases in, Cameron (*Smith & others*), 4127.
Supplying air to, for burning slack, Atterbury & Boyle, 4214.
Burning air-gas and liquid fuel in, Walker (*De Bergue*), 4241.
Nozzles for spraying oil in, Walker (*De Bergue*), 4241.
Extinguishing sparks in ash-pits, Budenberg (*May*), 4256.
Regulating draft, Budenberg (*May*), 4256.
Forcing air both under and over fuel in, Kidd, 4257.
Expansion joint for tubular fire-bars, Ellis, 4309.
Supplying air to and utilizing gases from, Preiswerk, 4324.
Injectors for cleaning bars and ash-pit, &c., Preiswerk, 4324.
Moveable fire-bars, and automatic feed for, Morgan, 4388.
Obtaining slow up & down movement of doors, Morgan, 4388.
For vertical rectangular boilers, Wright, 4419.
Self-stoking, for marine boilers, &c., Vicars & others, 4442.
Tubular grate for consuming smoke and to save fuel, Bordow. [4494.
Supplying air to, for consuming gases, Lipscombe, 4361.
Fire-basket or grate-box for, Jensen (*Püts*), 4538.

**Furniture:**

Paper material for chair seating, Gandy, 52.
Treating peat, &c. for use in making cabinets, Wilkinson, 69.
For holding vessels containing wine, &c., Gee, 111.
Adjustable chairs, garden and other seats, Alston, 171.
Stand for holding illustrations, Furrell (*Browne*), 261.
Music stool, Rider & Hutchence, 333.
Adjustable tables; reading stands or desks, Bell, 565.
Using mattresses as hammocks, Cornish (*Cornish*), 577.
Convertible desks, seats, and tables, Cameron, 604.
Chairs, beds, &c. for ships, Wirth (*Wertheim*), 637.
Suspending ships' furniture in equipoise, Chomel, 659.
Metallic bedsteads and cots, Atkins, 666.
Invalid bedsteads, Hunter, 743.
Bed or couch for invalids, &c., Lake (*Denéef & Wilkin*), 842.
Arm & other chairs for invalids, Lake (*Denéef & Wilkin*), 843.
Bedsteads for infectious patients, Currall, 868.

**Furniture**—*cont.*

Convertible, for sleeping cars, Alexander (*Mann & Paterson*), [1017.
Handle for drawers, Butler, 1061.
Convertible sewing-machine tables, Brewer (*Draper*), 1122.
Folding chairs, seats, &c., Newton (*Giessendorff*), 1186.
Disinfecting articles of, Teychenné, 1337.
Iron chair bedsteads, Bryett, 1453.
Combined desk-table for invalids, Walcker, 1521.
Self-acting bolt or catch for wardrobes, &c., Hinde, 1565.
Tables for sewing & other machines, Harrison & Mabson, 1575.
Writing desks or tables, Lake (*Wooton & others*), 1613.
Seats and backs for chairs, sofas, &c., Weatherby (*Mason*), 1660.
Making, covering, &c. table tops: desks, D'Humy, 1710.
Adjustable book and music stands or desks, Johnson, 1777.
Combined wood and metal bedsteads and cots, Key, 1836.
Supporting shelves of book and other cases, Ker, 1964.
Portable folding elbow chair; garden seat, Jones, 1987.
Supporting ships', to keep equilibrium, Anderson, 1992.
Combining different articles of, Weldhen (*Barnes*), 2008.
Sofas and ships' lounges, Clark (*Von Auer & Coombs*), 2092.
Forming equilibrated couches, beds, &c. in ships, Mayer, 2202.
Advertising in or by articles of, Smith, 2212.
Sideboards, chiffoniers, book-cases, and buffets, Smith, 2212.
Metal bedsteads with false foot piece, Tylor & Martin, 2255.
Double-bedded sofas and seats, Schoubersky, 2646.
Cleaning household, Lake (*Blake*), 2847.
Canteen bed used in campaigning, Gedge (*Manens*), 2924.
Guiding appliance for movable, Robinson, 2998.
Articulated back-rest for invalids, Maitrot, 3020.
Combined table and print case or portfolio, Bunyard, 3285.
Springs for chairs, cushions, bed bottoms, &c., Kellogg, 3289.
Hood for infants' cots and beds, Henderson (*Boivin*), 3362.
Applying magnetised springs or magnets to, Lyon, 3382.
Adjustable covers for work & writing tables, &c., Slater, 3391.
Wardrobes, cupboards, cabinets, &c., Leighton (*Smith*), 3399.
Fire-proof wardrobes, Hosmer (*Shepard*), 3469.
Fire-proof cases for pigeon holes, Hosmer (*Shepard*), 3469.
Combined seat, desk, and table, Laurie, 3487.
Portable hanging wardrobes for travelling, Parlby, 3575.
Combined davenport & sewing machine covers, Hubbard, 3597.
Parquetry work for ornamenting, Thornton & Thallon, 3632.
Folding work table for domestic use, Herts (*Herts*), 3652.
Machine for painting, Paget, 3661.
Automatic seats, Smith, 3726.
Suspending seats in vessels, Wise (*Belcalette*), 3754.
Self-acting bolt or catch for wardrobes, &c., Hinde, 3763.
Fastening for tables, Edwards, 3965.
Portable ambulance or garden lounge, McLean, 4034.
Folding seats, Whitford, 4046.
Table for use on board ship, Broadbridge (*Andrews*), 4183.
Securing drawers against thieves, Gedge (*Pérard*), 4214.
Combined case, easel, seat, and table for artists, Whyte, 4251.
Panelling for cabinet furniture, Wilkinson, 4267.
Article of, for displaying, &c. photographs, Browne, 4299.
Writing-desks, Quin, 4403.
Desk or frame for scholastic purposes, Jewitt (*Rose*), 4405.
Tenon joint fastening for chair rounds, Craig & Miller, 4536.

**Furniture casters.** *See* Casters.

**Furniture coverings and seatings.** *See* Upholstery.

**Furs and skins:**

Fur-coated fabrics to imitate, Crosby (*Kellogg*), 324.
Weaving fabrics in imitation of, Dobson, 926.
Cleaning and destroying moths in, Lake (*Blake*), 2847.
Applying metal powders to, Clark (*Mathias & Mathias*), 3766.

**Fusees and cigar-lights.** *See* Matches.

**Fuses:**

Making matches, fuses tubes, and ignition, Spill, 1739.
Self-acting percussion, for torpedoes, McEvoy, 2786.
Magneto-electric apparatus for firing, Kilner, 2996.

**Fustians (cutting pile of).** *See* Cutting.

## G.

**Gaiters.** *See* Leggings.

**Galvanising iron.** *See* Coating metals.

**Galvanism.** *See* Electricity.

**Game (preserving as food).** *See* Preserving food.

**Game-houses and coops.** *See* Houses.

**Games; exercises; gymnastic apparatus:**

Roller skates, Bennett, 168.
Kite or aërial apparatus, Clark (*d'Esterno*), 169.
Forming wheels of wheel skates, Perry, 233.
Game of "quintain," Mountfort & Mountfort, 292.
Raft for exercise on sea or waters, Count de Liancourt, 390.
Wheel, roller, or parlour skates, Walkington, 541.
Roller skates, Romanes, 716.
Roller skates, Harrington & Watkins, 759.
Roller skates, Goddard, 783.
Ball or spherical roller skates, Pilbrow, 835.
Roller skates, Cattlin, 849.
Billiard tables; automatic cue top fastener, Harris, 860.
Wheel or roller skates, Cherill, 873.
Securing skates to the feet, Gedge (*Dallemagne*), 922.
Roller skates, Spiller, 952.
Roller skates, Taaffe (*Pettitt*), 1026.
Roller skates, Cattlin, 1044.
Floors for freezing water for skating, Mackay & Rae, 1073.
Billiard, pool, &c. registering apparatus, Lea, 1132.
Billiard, pool, &c. marking and checking apparatus, Best, 1159.
Roller skates, Romanes, 1157.
Sledge skate for use on artificial ice, &c., Pritchard, 1153.
Ornamental open air skating rink, Rouse, 1175.
Wheel or roller skates, Westlake, 1283.
Fixing "men" in chess and draught boards, Harrington, 1364.
Roller skates, Bowles, 1402.
Roller skates, Bowles, 1403.
Skates of the "acme" type, Hilliard & Watson, 1557.
Target with pockets for balls ("Targetier"), Hannen, 1627.
Imitation snow slopes; vehicles for same, Hodgson, 1740.
Cricket bats, Stanhope, 1827.
Wheel or roller skates, Thackthwaite, 1984.
Roller skates, Harrington, 2023.
Billiard, pool, &c. marking & checking apparatus, Hare, 2203.
Skating rink of natural ice, West & Jacobi du Vallon, 2239.
Cutting or shaping counters in bone, wood, &c., Mincher, 2449.
Compound for making billiard balls, Thayer (*Smith*), 2513.
Roller skates, Keel & Cheshire, 2549.
Draught boards, Cadman, 2580.
Playing cards, Levy, 2583.
Roller skates, Bowles, 2852.
Roller skates, Morton & Morton, 2902.
Roller and runner skates, Robinson, 2998.
Jumping & trapeze apparatus; trees, &c. for same, Dando, 3067.
Series of games ("The wars of the roses"), Tomkins, 3129.
Self-securing skates, Gedge (*Dallemagne*), 3184.
Self-securing skates, Colton, 3241.
Overhead support for learners in rinks, &c., Wrigley, 3283.
Roller or wheel skates, Baker, 3331.
Gymnastic apparatus and spring mattress, Oliver, 3366.
Roller skates, Redmond, 3397.
Roller skates, Kemp & Allen, 3424.
Self-securing and adjustable skates, Hedderwick, 3459.
Ball casters for roller skates, Bonneville (*Rousseau*), 3522.
Stilt stirrup and tube, Clark (*Beaumont & Beaumont*), 3527.
Tenacious vulcanite for bowls or balls, MacLellan, 3578.
Blocks for "curling" in lieu of stones, MacLellan, 3578.
Roller skates, Mitchell, 3633.
Applying india-rubber, &c. to floors of rinks, Moseley, 3697.
Five-wheeled skate, Daniel-Tyssen, 3718.
Lawn tennis wells and ball carriers, Scott, 3775.
Wheel or roller skates, Morrisson, 3822.
Roller skates; making or building up rollers, Wright, 3921.
Quoits, boards, & pegs for indoor & outdoor use, Cramp, 3936.
Roller skates, Duddell, 3939.
Roller skates, Bliss, 3948.
Roller skates, Tubbs, 3960.
Roller skates, Keel, 3962.
Bituminous mastics for rink floors, Clark & Spiller, 3966.
Roller skates, Isitt & Farrer, 3974.
Roller skates, Mutton, 4004.
Roller or wheel and blade skates, Cadett, 4035.
Wheel or roller skates, Chislett, 4038.
Roller skates, Burstow, 4049.
Congealers for skating rinks, Wheeler (*Coughlin*), 4054.
Compound or material for skating rinks, Baggeley, 4067.
Billiard table cloths for improved games, Patzschke, 4113.
Metal cues; balancing same, Mewburn (*Lamoitié*), 4150.
Applying skid or break to roller skates, Haworth, 4158.
Roller skates; rollers for same, Todd, 4172.
Roller skates; oiling same, Beaumont & Pilkington, 4196.
Rollers for skates to deaden noise, Beaumont & Pilkington, 4196.
Roller skates; breaks for same, Rhodes, 4203.
Roller skates; wheels or rollers for same, Pilbrow, 4219.
Compound for skating rinks, Wilkinson, 4267.
Roller skates, Skidmore, 4323.
Roller and ice skates; lubricating axles, Clark, 4330.
Roller skates, Hedderwick, 4349.
Roller for skates, Collette, 4394.
Roller skates, Wright, 4397.
Shooting or propelling performers from cannons, Hunt, 4404.
Forming and maintaining ice skating rinks, Gamgee, 4412.
Mounting rollers of roller skates, Lamb, 4413.
Shooting performers from cannons, Farini, 4446.
Skates for rink or ice skating, Watkins, 4448.

**Games; exercises; gymnastic apparatus—*cont.***

Roller and wheel skates, Harrison, 4470.
Roller and runner skates; oiling rollers, Nunn & Tuddenham, [4473.
Roller skates, Richardson, 4487.
Fitting boot, shoe, or clog soles with wheels, Keel, 4509.
Roller skates, Bakers, 4543.
Wheel or roller skates, Greathead, 4545.
Adjustable roller skate; fastening same, Kunstadter, 4559.

**Garden devices and borders:**

Applying cements to and constructing, Ross, 850.

**Garden implements, &c.:**

Sweeping and rolling machine, Sinclair & Clayton, 639.
Attaching blades to triangular hoes, Lee, 991.
Driving garden engine pumps by their wheels, Stevens, 1314.
Device for holding and applying fertilisers, &c., Wheeler, 1592.
Forming socket eyes upon planters' hoes, Chapman, 1823.
Suspending and using watering cans, Huthwaite, 2426.
Mowing and grass edge cutting machine, Green, 2447.
Nozzle piece or "director" for garden hose, Tweeddale, 2507.
Earthing up & unearthing celery, asparagus & kale, Flynn, 2875.
Implement for gathering fruit without ladder, King, 2915.
Hand hoes, Lake (*Johnson & Richardson*), 3126.
Lawn-mowers, Ransome & Ling, 3261.
Garden syringe with double rose and relief valve, Shaw, 3272.
Grass edge cutting machine, Follows & others, 3288.
Screw-nuts for grass cutters, Follows & others, 3288.
Gathering apples, roots, &c. from the ground, Woolcott, 3310.
Fountain for watering flowers, Schildberg, 3359.
Warming water for syringing, &c. plants, Fuller, 3547.
Lawn-trimming and sod-cutting machine, Lloyd, 3859.

**Garden seats.** *See* Furniture.

**Garters:**

Stocking supporter for ladies and children, Cramp 1078.
Waterproofing and ventilating, Marshall, 1805.
Magnetised, Welton, 3727.
For obtaining free respiration, Marshall, 3949.

**Gas and other burners:**

Supplying heated air to, Newton (*Nobel*), 153.
Preventing waste and flickering in railway cars, Clark, 198.
Regulating gas issuing from, Dorat (*Grave*), 210.
For burning crude oils in furnaces, Clark (*Robinson*), 338.
For mineral oil lamps ("brilliant"), Hughes & Turner, 392.
Regulating, &c. argand, fish-tail, and other, Porter, 430.
Air conductor for argand, Porter, 430.
Ray, gridiron, and other forms, Peacock & Rudkin, 590.
For gas stoves, Kelen, 721.
For oil lamps, Sugg, 786.
Ellis gas-burners, Swann (*Ellis*), 1063.
Regulating delivery to, Bablon, 1194.
Regulating "bedroom" bracket burners, Stuttle, 1197.
For hydro-carbon oil lamps, Carr, 1225.
Carbon filter for purifying gas at burner, Hellier, 1233.
Circular, for oil lamps, Tongue (*Stobwasser*), 1342.
System of petroleum burners for heating, Jacquet, 1380.
Gauges for regulating flow of gas in, Rhames, 1626.
For oil lamps, Johnson (*Moehring*), 1882.
For gas stoves, Holmes (*Sharp*), 2387.
For petroleum lamps and cooking apparatus, Huch, 2394.
Heating air, gas, or vapour in and for, Newton (*Nobel*), 2523.
Carburetting air in and for, Newton (*Nobel*), 2523.
Regulating supply to, for heating retorts, Birrell, 2604.
Round burners for petroleum cooking stoves, Lachmund, 2778.
Gas, and holders for easy adjustment, Lake (*Trudeau*), 2819.
Regulating supply to railway carriage, &c., Duckham, 2905.
Electro-plating and contracting passage of, Carter, 3102.
Regulating or equalising supply to, Judkins, 3258.
Burners for burning vapour gas, Kidd, 3299.
For automatic lamp lighters, Bell & Thorp, 3303.
For illuminating-power gas-meters, Sugg, 3334.
Moulding and forming argand, Jewitt (*Rose*), 3440.
Adapting continuous ignition fuses to, Leonard, 3539.
For benzoline lamps, Dyer, 3585.
Regulating air supply to argand, Chandler, 3601.
Wickless, for spirit or mineral oil lamps, Horne, 4133.
Argand and flat wick, of oil lamps, Rippingille, 4137.
For hydro-carbon vapours and gases, Kidd & Hearson, 4265.
For gas furnaces, Godfrey & Howson, 4414.

**Gas (lighting and extinguishing):**

Lamps of railway carriages, Chambers, 734.
Railway carriage and other lamps by electricity, Wier, 806.
By the alteration of pressure in the main, Chiverton, 818.
In singeing yarns, Jagger & Jagger, 1142.
Arrangement of plates, &c. for, Landau, 1674.
Portable electric battery for, Gardner (*Mowbray*), 2132.
In railway trains, public buildings, and signals, Norton, 2243.
Galvanic apparatus, &c. for, Lake (*Wippern*), 2509.
Galvanic battery for, Gosling & Gluckstein, 3046.
Automatic apparatus for street lamps, Bell & Thorp, 3303.

**Gas (lighting and extinguishing)—*cont.***

Automatic apparatus for street lamps, Clark (*Jones*), 3326.
Electric apparatus for street and other lamps, Warden, 3524.
By variation of pressure in pipes, Scott & De Pailly, 4068.

**Gas (making):**

Apparatus for distilling gases, Dudgeon, 33.
Carburetting non-luminous gases, Kidd (*Arnold*), 66.
Recovering and treating refuse lime for use in, Mackay, 91.
For heating & illuminating from coal dust, Fyfe & Bowers, 101.
Cement for coating, setting, lining, &c. retorts, Sellars, 112.
Using magnesia in purifying coal gas, Scott, 135.
Obtaining hydrogen, for gas or hot-air engines, Vera, 175.
Using phosphate of iron in purifying, Box & others, 181.
Retort lids and mouthpieces, Waller, 184.
Carburetting air or gases, Ross, 197.
Carburetting air, for lighting or heating, Mather, 211.
Raising ammoniacal liquor in gas works, Colebrook, 261.
Purifying hydrogen gas for balloons, Simmons & Morris, 289.
Combined purifier and gasometer, Simmons & Morris, 289.
Collecting soap, grease, and oil from sewage for, Rydill, 389.
Hydrogen, by dynamo-chemical means, Clark (*Lemm*), 472.
From the decomposition of solid fuel and steam, Kidd, 531.
Combined gas-making furnace and steam generator Kidd, 531.
Nascent hydrogen, Clark (*Maxwell-Lyte*), 563.
Carburetting air or gases, Speir & Mather, 622.
From air and spirituous vapour combined, Neuhaus, 668.
Extracting and purifying, Johnson (*Huet & Geyler*), 681.
Fitting retorts for, Findlay & Jack, 930.
Centre valves for working purifiers, Walker, 1058.
Condenser, scrubber, gas-holder, &c. valves, Walker, 1058.
Carburetted hydrogen and carbonic oxide, Nicholas, 1116.
Heating gas retorts, Lockey, 1159.
Compounds for purifying, Hallsworth & Bailes, 1165.
From fæcal matters, Newton (*Sindermann*), 1216.
Utilising waste heat for, Stirling & Peacock, 1234.
Carbon filter for purifying gas at meter, &c., Hellier, 1233.
Collecting gases in coking peat, Conradi (*Kessler*), 1261.
From spent tan, Murdoch (*Homnaij*), 1397.
Purifying carburetted hydrogen, Cook, 1505.
Purifying and making, Whitley, 1694.
Gas purifying compounds, Hallsworth & Bailes, 1732.
Renovating spent oxide for re-use in, Ross, 1807.
Direct-acting pump for use in, Wallace, 1816.
Producing carbonic oxide, Clark (*Worms de Romilly*), 1948.
Exhausting and purifying, Clark (*Worms de Romilly*), 1948.
Indicating density and lighting power of gas, Bablon, 1972.
Injecting apparatus for purifying, Woodall & Wills, 1981.
Separating and using sulphuretted hydrogen, Hills, 1986.
Purifying gas by means of sulphides, Hills, 1986.
Fitting pipes to leg of ascension pipe, Copp & White, 1948.
Purifying, to enhance resultant liquor, Livesey, 1958.
Carburetted air, Schüssler, 2000.
Sulphuretted hydrogen, Bousfield (*French Copper Co.*), 2046.
Carburetted foul gas or vapour, Lake (*Turner*), 2048.
Annular oven or retort for, Wood, 2076.
Purifying coal gas; restoring spent lime, Cleland, 2087.
Carburetted air; purifying same, Fageol, 2251.
Discharging coke from retorts, West, 2346.
Retorts and mouth-pieces for, Brothers & Brothers, 2361.
In producing animal charcoal, Lyttle, 2406.
Ferruginous compounds for purifying, Lyttle, 2406.
From petroleum, &c., Brookes (*Du Rieux*), 2412.
Providing dip pipes with a bye-pass, White, 2473.
Sulphide of hydrogen, Fitz-Gerald, 2481.
Carburetting air in and for burners, Newton (*Nobel*), 2523.
Regulator for hydrogen generators, Birrell, 2604.
Regulator for retorts used in, Birrell, 2604.
Charging, discharging, and cleansing retorts, Warner, 2616.
Raising retorts, ascension pipes, &c. in, Warner, 2616.
Employing ferruginous ores for purifying, Howard, 2653.
Increasing quantity and quality produced, Redwood, 2693.
Combining or arranging apparatus for, Aitken & Young, 2725.
Hydro-carbon process for treating poor gases, Aitken & Young, [2725.
Hydrogen and carbonic oxide, Aitken & Young, 2725.
From spent bark, sawdust, peat, &c., Aitken & Young, 2725.
Oil-gas and carburetting same, Aitken & Young, 2725.
In distilling sea-wrack, &c., Dufrené (*Glaisot frères*), 2815.
Gas holders for railway and other carriages, Sugg, 2942.
Condensers, washers, and wet & dry purifiers, Anderson, 2943.
Retort and purifying houses, Anderson, 2943.
Drawing gas retorts, Steel, 2930.
From hydrocarburets; retort and injector for same, Bonnar-[ville (*Duchesne*), 3010.
Carbonic oxide & other gases, Spence (*Lefebvre & Co.*), 3160.
Purifying coal gas, Wise (*Sweeney*), 3179.
Producing carburetted hydrogen, Spencer, 3205.
Charging retorts, Whitaker, 3229.
Charging vessels with condensed or liquefied gases, Adams, 3257.
Carburetted air, De Ewer & Bloomfield, 3259.
Self-sealing retort lids, Soley (*Collinson*), 3269.
Vapor gas generators, Kidd, 3299.
Carburetting coal gas, Weston, 3301.
Indicating illuminating power of gas, Sugg, 3334.
Gas-testing cock for impurities, &c., Walker (*Drory*), 3388.

Gas (making)—*cont.*
Hydrogen gas in & for raising sunken ships, Bradshaw, 3410.
Combining retorts with furnaces, Stirling & Peacock, 3436.
Fuel gas; illuminating or hydrocarbon gas, Lyttle, 3579.
Carbonic oxide flame; "hollow wall" or retort for, Lyttle, 3579.
From carbonaceous residues of sewage, Slater, 3668.
From creosote, &c., Aitchison & Whyte, 3680.
Utilising waste heat from retorts, condensers, &c. in, Maw, 3309.
Bottle brush and drip ledge for condensers, Cleland, 3704.
Furnaces or kilns for, Johnson (*Huyard*), 3759.
Retort for; effecting combustion of coal in same, Cornforth & [others, 3826.
Carburetted air, Hahn (*Daschbach*), 3831.
Hanging flap valve for relieving retorts, White, 3838.
By fixing retort in steam-boiler furnace, Jackson, 3841.
Constructing and arranging retorts, Bennett, 3850.
Furnaces, &c. for, for tanning, Clark (*Delhort*), 3911.
Retorts and fittings for, Bennie, 3934.
Carburetters for air or gas, Grundy (*Allen*), 4044.
Self-cleansing valves for purifiers, Thorneloe, 4083.
Carburetted steam; decomposing same, Lake (*Beatley*), 4117.
Gas washers, Butt & Herring, 4126.
Combining gases from blast furnaces and coke ovens for steel [making, Bromilow, 4183.
From mineral oils, Bresson, 4296.
Avoiding formation of smells and waste in, Blewitt, 4303.
Hydrogen, for explosive gas engines, Ellerbeck & Syers, 4326.
Carburetted hydrogen and carbonic oxide gas, Colls, 4362.
Carburetting, &c. non-illuminating coal gas, Colls 4362.
Charging, drawing, opening, and closing retorts, Steel, 4401.
Scrubbers; driving scrubber mechanism, Walker, 4477.

Gasaliers and gas pendants. *See* Lamps.

Gas-brackets:
Compound pattrass for, Atkins & Torr, 594.
Regulating "bedroom" bracket burners, Stuttle, 1197.

Gas-engines. *See* Air and gas engines.

Gases, vapours, and fumes (not defined):
Causing dry materials and, to act on each other, Deacon, 332.
Generating, for motive-power purposes, Boulton, 574.
Absorbing and separating, Johnson (*Huet & Geyler*), 681.
Washing or absorbing, Wise (*Solvay*), 820.
Separating liquids from, Johnson (*Genesta & others*), 826.
Indicating heat or pressure of, Bagot, 945.
Separating bodies of any kind from gases, Braun, 1278.
Apparatus for retaining liquefied, Caffall, 1655.
Cowl and screw apparatus for washing, Stephens, 2872.
Liberators for vessels holding condensible, Adams, 3237.
Locking flanges, &c. for passage apparatus for, Newton, 3542.
Exposing porous materials & gases to mutual reaction, Deacon, [3920.
Superheating furnace, for propelling ships, Preiswerk, 4324.

Gases (pumping, exhausting, &c). *See* Air & gases.

Gas-meters. *See* Meters.

Gasometers. *See* Gas (making).

Gas-pipes. *See* Pipes.

Gas-regulators:
Automatic, Cave, 141.
For railway carriages to prevent flickering, Clark, 198.
For burners, to prevent whistling, &c., Dorat (*Graves*), 210.
Valve for regulating flow to flame, Porter, 430.
Preventing waste in cooking, heating, &c., Loebl, 614.
Or governors, Lake (*Shepard & Seaman*), 761.
For supplying carbonic acid gas to ale, beer, or cider, Lake [(*Shepard & Seaman*), 761.
Regulating plug for Ellis burners, Swann (*Ellis*), 1063.
For burners, Bablon, 1194.
For "bedroom" bracket burners, Stuttle, 1197.
Or gauges for gas-burners, Rhames, 1626.
Automatic, for measuring lighting power, &c., Bablon, 1872.
Station gas governors, Key, 2067.
Station, district, and small gas governors, Peebles, 2328.
For regulating pressure and production of gas, Birrell, 2604.
For railway and tramway carriages, Duckham, 2905.
Regulating burner, Carter, 3102.
For railway carriages, street lamps, &c., Judkins, 3258.
Combined illuminating-power meter and, Sugg, 3334.
Governing devices for argand burners, Jewitt (*Rose*), 3440.
Automatic gas gauge, Scott & De Poilly, 4068.

Gassing fabrics and yarns. *See* Finishing.

Gas-stoves. *See* Fire-places.

Gas-torches or fire-lighters. *See* Fuel (fire-lighters).

Gate hinges. *See* Doors.

Gates. *See* Doors.

Gathering and binding cut crops. *See* Reaping.

Gathering fruit. *See* Garden implements.

Gauges (miscellaneous):
For indicating water-level in cisterns, Henriot, 675.
Recording pressure, for liquids, &c., Haseltine (*Edson*), 1181.
For indicating water-level in ships' holds, &c., Nicholas, 1569.
Or regulators for gas-burners, Rhames, 1626.
For use in cutting button-holes, Cramp, 2444.
For bores of gun-barrels, tubes, &c., Allport, 2535.
For indicating water-level in ships' holds, &c., Nicholas, 2539.
For skips, hampers, and baskets, Scholfield, 2578.
Indicating tidal levels of rivers, &c., Morris & Hunter, 2632.
Pressure, for taking soundings, &c., Bucknill & Casella, 2742.
For use in punching holes in belting, Fairbank & Hollings, 2818.
For measuring thickness of boiler, &c. plates, Laidler, 2824.
For indicating level in oil-feeders, Coux des Roseaux, 3202.
Electric alarm for pressure, Vaughan (*Nesch*), 3341.
For gauging contents of vessels, Emett & Angel, 3460.
Air or draft, for mines, ventilators, & chimneys, Pastorelli, 3706.
Automatic gas gauge, Scott & De Poilly, 4068.
Combined instrument with anemometer, &c. (The mensor"), [Henderson, 4363.

Gauges; water-level indicators (steam-boiler):
Governor or regulator applicable as a pressure, Cave, 141.
Mica water-gauge, Perkins, 224.
Water-level indicator and alarum, Barlow (*Stratton*), 407.
Low-water detector, Stuart, 537.
Combined pressure & water-guage, test-cock, &c., Bailey, 539.
Preventing incrustation in tubes of water, Bailey, 539.
Water-level, with or without glass tubes, Henriot, 675.
Applying enamel to part of water-gauge glasses, Tomey, 943.
Low-water-level alarm, Lake (*Sulzbach*), 1049.
Recording pressure & alarm gauge, Haseltine (*Edson*), 1181.
Low-water alarm whistle or detector, Kenyon, 1538.
Water-level indicating apparatus, Nicholas, 1569.
Low-water indicator and alarm, Armengaud (*Cornevin*), 2133.
Water-level indicating apparatus, Nicholas, 2539.
Low-water apparatus to allow steam to escape, Hallam & Lamb, [2607.
Electric water-level indicator and alarum, Roberts, 2634.
Water-level indicator, alarm, &c. ("safety tube"), Riley, 2854.
Electric alarm for steam pressure, Vaughan (*Nesch*), 3341.
Facilitating reading of boiler, Emett & Angel, 3460.
Water-level indicator and alarm, Morgan (*Moskovits*), 4503.

Gaveling or binding grain. *See* Reaping.

Gelatine; glycicoll:
Magnetic gelatines and glycicolls, Darlow & Fairfax, 2102.

Generating steam. *See* Steam-boilers.

Germ-meal. *See* Grinding corn.

Getting coal. *See* Mining.

Gilding; silvering; bronzing:
Gilding books, paper, or cards, Ritchie, 1034.
Applying gold, silver, &c. powders to furs, Clark (*Mathias & [Mathias*), 3766.
India-rubber tools and surfaces for, Paget, 3773.
Liquid compound for bronzing metals, Roucou, 4064.
Producing designs in metals on silks, Andrew & others, 4541.

Gilling fibres. *See* Spinning (carding).

Gimlets and screw-passers:
For use without loosing handle, Wolverson, 763.

Ginger-bread. *See* Confectionery.

Ginning cotton. *See* Spinning (batting).

Girders. *See* Beams.

Girdles for wear. *See* Belts.

Glaciaria and skating rinks. *See* Games.

Glass (making, annealing, applying, &c.):
To insulating piano-forte legs, Miller, 24.
Recovering and treating refuse lime for, Mackay, 91.
Forming tank end of furnace cupolas, Scott, 123.
Cupola furnaces, in two parts, Willans, 157.
Tank furnaces for melting, Sheffield, 411.
Blowing, by means of compressed air, Smith, 480.
To backs and handles of brushes, Pearson, 516.
Producing illuminated & embossed letters, &c. on, Kelly, 531.

**Glass (making, annealing, applying, &c.)—*cont.***

Materials for ornamenting glass surfaces, Boggett, 526.
To lining brewers' squares, troughs, and vats, Cutler, 601.
Copper plates for printing or ornamenting, Brown, 714.
Tank furnaces, for saving fuel, &c., Paul & Sanderson, 898.
Producing etchings and ornamental designs on, Skinner, 1030.
Gas and lamp chimneys and globes, Pulford, 1235.
Reflectors or radiators for lamps or burners, Pulford, 1235.
Bridges and walls of tank furnaces, Cartwright, 1243.
Elastic type and apparatus for printing, &c., Holyoake, 1255.
To sound boards of musical instruments, Steinfelser, 1328.
Tempering flat and shaped; furnaces for same, Huch, 1336.
Tempering and toughening, Jensen (*Meussel*), 1338.
Tank furnaces for smelting, Macvay, 1350.
Grinding, crushing, &c. by centrifugal force, Lucop, 1429.
Protecting articles of, Bonneville (*Perlau*), 1514.
Regenerative gas tank furnaces for melting, Siemens, 1551.
Scoops for feeding glass melting tanks, Siemens, 1551.
Glasses for railway carriage roof lamps, Defries, 1554.
Moulding discs of, Varley, 1635.
Hardening, tempering, pressing, and moulding, Siemens, 1637.
Moulding oil lamp reservoirs, Lomax, 1642.
Combining with ceramic ware, &c. for making and ornament-[ing various objects and surfaces, D'Humy, 1710.
Decorating or ornamenting, Aubriot, 1797.
Toughened glass to caps, tubes & flyers, Martin & Ashley, 1922.
Toughened glass to water-supply apparatus, Tylor, 1857.
Ink for and transferring designs, &c. to, Holyoake, 1941.
Toughened glass to safety-lamp chimneys, Pinching, 1949.
Making "clustered lenses" for walking surfaces, Hyatt, 2015.
Process, furnaces, &c. for tempering, Royer de la Bastie, 2157.
Toughened glass to coal plates, gratings, &c., Hyatt, 2359.
Toughened glass blocks to vessels' decks, &c., Hyatt, 2359.
Toughened pressed, for walking surfaces, &c., Hyatt, 2359.
Toughened glass vessels for preserved food, De la Perrelle [(*Guérin*), 2437.
To oil vessels of lubricators, Burnett & Hornsby, 2611.
Material for making common bottle, Heinzerling, 2639.
Toughened glass coffins, Warren, 2859.
Constructing, &c. ends of furnaces or tanks, King & Little, 3154.
Making, annealing and applying, Monckton, 3307.
Ingredients for forming annealing baths, Monckton, 3307.
Cooling bridge of tank glass furnaces, Cowper, 3350.
Making and applying ornamental, to gratings, Hyatt, 3357.
Toughened glass rings for throstle frames, Grether, 3370.
Glass ware suspenders, Rhodes, 3412.
Toughened glass shades for electric lamps, Prosser, 3466.
Observing tubes, collectors, tanks, and filters, for water-supply [apparatus, Newton, 3542.
Transfer blocks for graining wood, Embley & Pilkington, 3670.
To making curtain bands, Edmett, 3721.
Blowing aërated liquid bottles, Sutcliffe & Fewings, 3751.
India-rubber tools and surfaces for painting, Paget, 3773.
Kiln or tower for annealing, Cannington & Shaw, 3906.
Making, from flint stones, blocks of quartz, &c., Britten, 4017.
Toughening, for deck lights, &c., Hyatt, 4063.
Glass bricks or blocks for roofs, &c., Hyatt, 4063.
Printing flat sheets of common, Hunt (*Wells*), 4153.
Glass press & gatherer ("The monarch"), Perry & Perry, 4193.
Furnaces for melting materials in making, Scott, 4263.
Cutting, drilling, engraving, or carving, Lawrence, 4396.
Shaping convex or concave reflectors or lenses of, Bessemer, [4552.

**Glasses (wine and other).** *See* Drinking vessels.

**Glazes:**

For bricks, tiles, cooking utensils, &c., Baggeley, 4067.
For making blocks and other articles, Baggeley, 4067.

**Glazing leather.** *See* Leather.

**Globes.** *See* Maps.

**Gloves; mittens:**

Cutting and shaping, Maes (*Fouillon*), 331.
Sewing-machine for closing fingers of, Douglas, 348.
Applying elastic gussets to, Balshaw, 834.
Attaching buttons to, Marsden, 985.
Fastening for, West, 1287.
Studs for fastening, Holmes, 1473.
Snap fastenings or studs for, Greaves, 2019.
Dressing or preparing leather for, Tombs, 2333.
Sewing-machines for making, Bland, 2368.
Glove sewing-machines, Gray (*Jelstrup*), 2502.
Overseam sewing-machine for, Boone & Detrick, 2553.
Fastening for, Haddan, 2836.
Hydropathic, Dale, 3168.
Combined magnetic and crystalline flesh, Whiting, 3345.
Stud fastener for, Read, 3525.
Rotary spool machine for sewing, Morgan-Brown (*Guld-* [*brandsen & Rettinger*), 4123.
Fastenings for, Lempriere, 4201.

**Glucose.** *See* Sugar.

**Glue:**

Substitute for ("apparature"), Scott (*Gerard*), 38.
Magnetic glues, Darlow & Fairfax, 2162.

**Glycicoll.** *See* Gelatine.

**Goffering; plaiting; crimping; fluting:**

Trimmings, fabrics, &c., Johnson (*Lowerre & Tucker*), 85.
Plaiting fabrics, Rath & Scantlebury, 232.
Folding or plaiting cloth, Hacking & Hacking, 1668.
Plaiting or folding fabrics for trimmings, &c., Rath, 2717.
Plaiting fabrics, Nickols, 4243.
Crimping or craping hair, Donisthorpe & Clarke, 4336.
Constructing and heating crimping irons, Podder, 4421.

**Gold.** *See* Smelting.

**Goloshes.** *See* Boots and shoes.

**Gongs.** *See* Bells.

**Goniometers.** *See* Mathematical instruments.

**Goods (piling).** *See* Piling.

**Governors:**

For gas or petroleum engines, Abel (*Daimler*), 71.
Or steam regulator for engines, Cave, 141.
Working steam-engine, Broadbent & Westerby, 231.
Double-cylinder steam-engine, Hughes, 372.
Attaching steam-engine expansion gear to, Cameron, 488.
Regulating and controlling motion of machinery, Defty, 708.
Controlling motion of steam-engines, Otto, 1266.
Steam governor for steam-engines, &c., Chase, 1450.
Regulating speed of locomotives, Kleinen, 1566.
Controlling speed of electro motors, Nelson & Anderson [(*Paine & Paine*), 2049.
Steam and other engine, Hartley, 2168.
Steam-engine, Higginson, 2463.
Arranging caloric engine, Brewer (*Van Gülpen & others*), 2517.
Compensator for steam-engines, Sington (*Serralier*), 2572.
Applying gas-motor engine, Crossley & Crossley, 2821.
For rotary steam and other fluid pumps, Thornycroft, 2885.
Regulator valve for engines and machines, Saxby, 2928.
Fly-wheel for tramway locomotives, &c., Gendebien, 2949.
To prevent racing in steam-pumps, Benson (*Cope & Maxwell*), [3008.
Preventing racing in steam-engines, Galsworthy, 3041.
Marine engine, to prevent racing, Johnson (*Wolcott*), 3128.
Or "servo-motors;" controlling same, Clark (*Parent & others*), [3245.
For spring motors, Lake (*Manson*), 3369.
For steam, water, and other engines, Napier, 4125.
For compound engines and other motors, Bennett, 4128.
For compressed air and other engines, Holt, 4316.
Regulating working of gas-engines, Alexander (*De Bissclop*) [4342.
Controlling application of break power, Lawrence, 4438.
Steam-engine, Cole & Cole, 4512.

**Governors (gas).** *See* Gas-regulators.

**Grain and seeds (grinding).** *See* Grinding corn.

**Grain and seeds (thrashing).** *See* Thrashing.

**Grain and seeds (treating):**

For starch, beer, and alcohol, Johnson (*Adamson*), 381.
Cleaning clover, grass, and other, Catchpole & others, 612.
Dressing and drying; feeding elevator for same, Sainty, 708.
Extracting seeds of the common bedstraw from, Sainty, 708.
Removing smut from & cleaning wheat, &c., Van Gelder, 732.
Barley mills for, Higginbottom & Hutchinson, 966.
Removing pulp from coffee berries, Lidgerwood, 1168.
Barley mills for, Higginbottom & Hutchinson, 1183.
Broken and refuse grain in making sugar, Pearce, 1469.
Tubular screw-apparatus for drying, Walker, 1588.
Barley mills for, Higginbottom & Hutchinson, 1811.
Maize, for making flour, starch, &c., Clark (*Chiozza*), 2067.
Dressing corn and other grain, Leatherland, 2293.
Chemically decorticating cereals, Sézille, 2471.
Grain, rice or seed cleaner and separator, Rose, 2566.
Cleaning or purifying, Bone, 2692.
Drying grain by heated air, Baker & Forbes, 2702.
Reel for cleaning and separating, Thompson & Lampitt, 2951.
Self-cleaning adjusting rotary screen, Brinsmead, 2952.
Rotary screen with drum of triangular wire, Cousins, 3069.
Hulling, polishing, cleaning, separating, &c., Burkholz, 3187.
Cleaning, dressing, hulling and polishing, Allin, 3461.
Damping grain between stages of decortication, Allin, 3461.
Sifting, sorting, and cleaning, Catchpole, 3744.
Hulling, cleaning, polishing, &c. coffee, Lake (*Squier*), 3929.
Storing, afloat in harbours, Inglis (*Inglis*), 3965.
Grain cleaners, Morgan-Brown (*Ross & Ross*), 4028.
Cement for forming appliances for decorticating, scouring, [and cleaning, Dresser, 4088.
Cleaning grain, rice, and seeds, Childs, 4465.
Cleansing and separating wheat or other grain, Pritt, 4489.

**Grain-crops (hoeing).** *See* Tilling.

**Grain-drills.** *See* Sowing.

**Graining and painting.** *See* Painting.

**Grains or spent malt:**
Tubular screw-apparatus for drying, Walker, 1886.

**Granaries:**
Floating, for harbour use, Inglis (*Inglis*), 3965.

**Granulating:**
Slag or scoria and iron, Bodmer & Bodmer, 1054.
Disintegrator for, Carter, 1817.
Heraklin, Morgan-Brown (*Dieckerhoff*), 4155.

**Granules (dietetic).** *See* Preserving food.

**Grapes (press for squeezing).** *See* Presses.

**Graphite.** *See* Plumbago.

**Grapples for dredgers.** *See* Dredgers.

**Grass seed (cleaning).** *See* Grain & seeds (treating).

**Grates.** *See* Fire-places. Furnaces.

**Gratings:**
Illuminating, Hyatt, 2015.
Using toughened glass for, and making, Hyatt, 2359.
Illuminating, ventilating, and ornamental, Hyatt, 3357.
Magnetic, for floors of hospitals, rooms, &c., Lyon, 3332.
Ornamental illuminated, for panelling, &c., Hyatt, 4063.
Inserting translucent cross bars in, Hyatt, 4063.
Illuminating, for walking surfaces, Hyatt, 4063.
Embedding glasses of, in india-rubber, Hyatt, 4063.
Toughening glass of grating lights, Hyatt, 4063.
Ventilating, for sewers, &c., Parker, 4378.
For drain and sewer inlets, Clark (*White*), 4526.

**Graves; vaults:**
Applying cements to and constructing, Ross, 850.

**Grease.** *See* Oils (animal).

**Greenhouses; pits; conservatories:**
Hot-water apparatus for, Ormson, 317.
Vineries, forcing houses, pits, fruit houses, and, Ross, 850.
Stove for heating, Crichley, 859.
Heat or pressure indicator and alarm for, Bagot, 945.
Hot-water apparatus for, Hilton, 1208.
Hot-water apparatus for, Goddard & Massey, 1358.
Adapting petroleum burners to boilers for, Jacquet, 1380.
Heating and cooling greenhouses, vineries, &c., Gray, 2577.
Portable hot-water apparatus for heating, Gadsby, 2907.
Saddle-boilers for warming, Lumby, 2908.
Saddle-boilers for conservatories, McLaren, 3041.
Vertical rectangular boilers for heating, Wright, 4419.
Portable and self-contained boiler for heating, Keith, 4506.

**Gridirons.** *See* Cooking.

**Grinding, crushing, &c. mineral substances:**
Jaw machines for, stones, ores, &c., Bradley & Madderson, 63.
Rotary crushing fire-bars for reducing furnaces, Lyttle, 105.
Roller machine for, Cole, 110.
Discharging crushed ores, Hall, 731.
Ores, rock, and stone, Milburn & Jackson, 963.
Mills or crushers for, Ward, 1167.
Coal, in mechanical stoking machines, Bennis, 1308.
Machine for stamping or crushing, Brakell, 1398.
Ores, by centrifugal force, Lucop, 1429.
Valves, coffers, &c. for ore stampers, Warran & Ellis, 1794.
Disintegrators; feeding mills or machines, Carter, 1817.
And amalgamating metals, Wiggins & Carvell (*Clouser*), 1975.
Direct-acting pneumatic hammer for ores, Sholl, 2524.
Forming "swing jaws" of stone breakers, Haden, 2711.
Forming extra cubing pieces on stone breakers, Haden, 2711.
Forming jaws of stone breakers, Marsden, 2717.
Pulverizing ores, stones, minerals, &c., Marsden, 2717.
Stamping or crushing and pulverising ores, &c., Boyns, 3418.
Powdering coal for smelting, &c., Ferry, 3714.
Ores and coal, Morgan (*Sachsenberg & Brückner*), 3794.
Metallic grinding surfaces for, Reid & Hubbersty, 3817.
Mills for crushing, splitting, and, Corbett, 4140.
Flint, stone, &c. used in making pottery, Boulton, 4170.

**Grinding, polishing, smoothing, and surfacing:**
Emery, stone, and other wheels for, Martin, 64.
Substitute for emery powder, Luckenbach, 243.
Lithographic stones, marble & stone, Salmon & Crosland, 581.
Constructing & mounting emery & other wheels, Butler, 1177.

**Grinding, polishing, smoothing, &c.—*cont.***
Slabs of marble or other stone, Butler, 1177.
Convertible machine for, cutlery, Simon, 1293.
Machine tools for, metallic surfaces, Handyside, 1702.
Emery wheels and mandrils for use in, Handyside, 1702.
Emery wheels; guards for same, Budenberg (*Bollmann*), 1780.
Cutting & trueing emery wheels, Budenberg (*Bollmann*), 1780.
Compositions for, metals, &c., Stevens (*Atwater*), 2090.
Emery, stone, and other wheels for, Martin, 2374.
Driving emery wheels, &c., Goldsworthy & Barlow, 2763.
Polishing surfaces of pencils, penholders, &c., Wilson, 3094.
Hand apparatus for polishing instruments, Beynon, 3113.
Traversing emery wheels; working same, Johnson (*Blake*), [3678.
Castings and other articles, Johnson (*Blake*), 3678.
Needle polishing machine; feeding mechanism, Milward, 3725.
Polishing stones or slabs, Liddell, 3782.
Or finishing tools and metallic surfaces, Handyside, 3865.
Emery wheels, rings or discs, plates, &c., Young & Brown, 3887.
Spinning machine spindles, Leyland, 4041.
Polishing stone, slate, marble, &c., Dunlop & Ree, 4120.
Fixing or holding stones in polishing machines, Dunlop & Ree, [4120.
Polishing wire for comb, &c. pins, Harding & Harding, 4178.
Polishing wire for needles, &c., Harding & Harding, 4178.
Vegetable ivory buttons; compound for same, Hesse, 4197.
Cement for agglutinating emery, &c., Dresser, 4393.

**Grinding and crushing miscellaneous substances:**
Disintegrating stiff natural lump clay, Lyttle, 105.
Crushing baryta, cocoa, refined sugar, &c., Cole, 110.
Peat, Morgan-Brown (*Verdier*), 654.
Disintegrating animal & vegetable matter for manure, Cox, 728.
Bones for food and manure, Bradford, 727.
Chalk, bones, clays, clinkers, lime, &c., Milburn & Jackson, 933.
Paint, india-rubber, white lead, &c., Butler, 1177.
By centrifugal force, Lucop, 1429.
Disintegrators for peat, coal, charcoal, &c., Hall & Bainbridge, [1460.
Or disintegrating sugar-cane, sorghum, &c., Hunt (*Reynoso*), [1558.
Pulping cocoa nuts and other fruits, Hunt (*Reynoso*), 1558.
Peat for making fuel, Lake (*Dodge*), 1725.
Cane-sugar, &c., Richardson, 1774.
Disintegrators; feeding mills or machines, Carter, 1817.
Crushing and pulping hops, &c. for brewing, Walker, 1886.
Food, drink-making, and medicinal substances, Hyatt, 2307.
Food and collecting same in form of dust, Hyatt, 2307.
Disintegrators; driving same, Hirzel, 2468.
Grinding pans for mortar mills, &c., Pollock & Powley, 2530.
Water-wheel, &c. for driving coffee mills, Lake (*Lane*), 2615.
Sugar-cane, Johnson (*Mignon & Rouart*), 2647.
Whiting, ingredients for manures, &c., Pass & Pass, 3203.
Cement, &c., Morgan (*Sachsenberg & Brückner*), 3794.
Colour, glaze, &c. used in making pottery, Boulton, 4170.
Bark, Hunt (*Thompson & Nowell*), 4235.
Sugar-cane mill ("duplex two roll mill"), Chapman, 4411.

**Grinding and sharpening:**
Twist bits or drills, Johnson (*Van Haagen*), 47.
Artificial grindstones, Martin, 64.
Cutlery, Lake (*Bogle*), 395.
Grindstone apparatus for, drills, &c., Johnson (*Van Haagen*), [912.
Holding drills during, Johnson (*Van Haagen*), 912.
Cards and card rollers of carding-engines, Dronsfield, 1039.
Balancing grindstones, Butler, 1177.
Preventing breakage, &c. of stones and wheels, Wilson, 1241.
Convertible machine for, cutlery, Simon, 1293.
Or setting up cork cutters, Haid (*Boethius*), 1390.
Shears and scissors sharpener, Holding, 1446.
Cards on carding-engines, Hitchon, 1743.
Top cards or "flats" of carding-engines, Kay, 2336.
Artificial grindstones, Martin, 2374.
Knives in cutting flocks or rags, &c., Lowe & others, 2379.
Metallic compound for razor strops, &c., Workman, 3515.
Card-flats and card-rollers of carding-engines, Dronsfield, 3786.
Cork-cutting machine tools, Warrington & Harwood, 3802.

**Grinding corn, grain, and seeds; dressing flour:**
Grains, nuts, and berries, Cole, 110.
Continuous process of making flour, Johnson (*Oazie*), 561.
Flour dressing machine, Lake (*Martin*), 949.
Silk flour dressing reels, Thornton, 1076.
Bolting flour and cooling millstone, Henry (*Bouchotte*), 1145.
Fitting stones in carriers or holders for, Butler, 1177.
Middlings separator or purifier, Crabtree, 1204.
Aspiring flour sifting machine, Aubin, 1409.
By centrifugal force, Lucop, 1429.
Disintegrators; feeding mill-stones, Carter, 1817.
Millstone dressing machine, Whittingham, 1820.
Feeding and mixing different sorts of grain in, Riches, 1952.
Maize for flour, Clark (*Chiozza*), 2007.
Magnetic flour, Darlow & Fairfax, 2103.

**Grinding corn, grain, and seeds, &c.—*cont.***

Keeping faces of stones parallel, Bedford, 2404.
Disintegrators for; driving same, Hirzel, 2468.
Purifying and assorting middlings, Rose, 2506.
Separating germs from wheat, and obtaining "germ meal," [Muir, 2560.
By moveable and fixed vertical stones, Ellison, 2596.
System of, for direct bolting of flour, Miller, 2768.
Cleaning and assorting groats in, Wirth (*Bühlmann*), 2811.
Dressing flour & middlings, Thompson & Lampitt, 2933.
Dressing, sifting, and feeding middlings and meal, Smith, 3042.
Mill with four grinding surfaces, Pini, 3067.
Cleaning semolina and middlings, Buchholz, 3107.
Millstone dressing tool or apparatus, Beynon, 3113.
Reel for purifying middlings, Leicester & Blezard, 3518.
Dressing or bolting machine, Leicester & Blezard, 3518.
Driving, dressing and bolting reels, Leicester & Blezard, 3518.
Mill for feeding, screening, breaking down, and, Corbett, 4140.
Roller mill & tightening driving belts of same, Demmer, 4218.
Reducing vibration, &c. of millstones, Bate & Bryan, 4283.
Bolting flour and purifying middlings, Childs, 4465.
Separating flour from middlings or sharps, Pritt, 4489.

**Groats.** *See* Grinding corn.

**Grubbers (land).** *See* Tilling.

**Guano.** *See* Manure.

**Guides for machinery:**

Self-lubricating material for, Newton (*Murfey*), 1025.
Roller bearings for, Hoadley, 4124.

**Guiding ships and boats.** *See* Steering.

**Gums; resins; gum-resins:**

Substitute for ("apparature"), Scott (*Gerard*), 38.
Solvents for resins and gum-resins, Mackay, 200.
Using fusel oil for dissolving gum copal, &c., Pitchford, 726.
Preparing oils for mixing with dissolved, Zingler, 1276.
Magnetic gums, Darlow & Fairfax, 2102.
Using gum euphorbia in anti-fouling compositions, Johnson [(*Heyl*), 2972.
Treating, in making varnish, &c., Spence (*Lefebvre & Co.*), 3164.
Boilers for distilling resins, Bordone, 4491.

**Gun-carriages.** *See* Fire-arms.

**Gun-cotton.** *See* Explosive compounds.

**Gunpowder.** *See* Explosive compounds.

**Guns.** *See* Fire-arms.

**Gutta-percha (treating and applying):**

To soles of boots and shoes, Wetton, 359.
To making teeth of wheels, Turner, 1268.
In making artificial flower buds, &c., Clark (*Person*), 2318.
Recovering and using refuse, Heinzerling & Liepmann, 2495.

**Gutters or rhones.** *See* Drains.

**Gymnastic apparatus.** *See* Games.


## H.


**Hackling fibres.** *See* Spinning (carding).

**Hair (crimping or craping).** *See* Goffering.

**Hair-dressing; shaving:**

Soap for strengthening and softening hair, Green, 129.
Preventing grayness and premature baldness, Green, 129.
Hair and shaving brushes, Pearson, 516.
Apparatus for shaving, Monks, 1526.
Hair-pins with better holding qualities, Hill, 2667.
Trimming for head or hair ornaments, McPherson, 3106.
Hair and shaving brushes, Barker, 3329.
Sharpening compound for razor strops, Workman, 3515.
Combining terebene with pomades, Cleaver, 4248.
Making "terebene pomade," Cleaver, 4335.
Crimping hair for frisettes, &c., Donisthorpe & Clarke, 4336.

**Hames.** *See* Harness.

**Hammers:**

Claw and other, Hughes (*Parker*), 61.
Steam-hammer cylinders, Haseltine (*Winchester & Phelps*), 465.
Attaching handles to, Lee, 991.
Slide-valves, &c. for steam, Fawcett & Firth, 1100.
Hammer and motive-power machine combined, Brakell, 1393.

**Hammers—*cont.***

Forming eyes upon, Chapman, 1866.
Reciprocating fluid engine for driving, Edwards, 2013.
Cushioning piston of steam, Pickering, 2247.
Direct-acting pneumatic, for crushing ores, &c., Sholl, 2524.
Combining steam and air cylinders for pneumatic, Sholl, 2524.
Working "oliver," Davies & others, 2586.
Slide-valves for self-acting steam, Bridgett, 3023.
Valves for steam; operating same, Glossop, 3349.
Vertical sliding, for forging or stamping, Hardisty, 3461.
For welding and flanching boiler tubes & rings, Plant, 3594.
For driving sprigs and vis-nails, Thwaites & Thompson, 4003.
Explosive-gas hammer, Ellerbeck & Syers, 4326.
Combined steam and hydraulic hammer, Tough, 4496.

**Hammocks.** *See* Furniture.

**Hampers.** *See* Baskets.

**Handkerchiefs:**

Fabric for ("camelia silk"), Mewburn (*Graissot*), 3787.
Producing designs in metals on silk, Andrew & others, 4541.

**Handles (use not defined):**

Mounting winch, upon machines, Wilson & Battersby, 375.
Hollow, for small articles to slide into, Devenport, 463.
Metallic, for articles and vessels, Garfield, 664.
Hollow, of corrugated sheet metal, Clark (*Taft*), 1153.
For vessels similar to tea-pots, Hart, 1653.
Adjustable clip and socket for attaching, Mylchreest, 2062.
Leather-covered, for articles similar to bags, Myring, 4097.

**Hanging wall-papers.** *See* Paper-hangings.

**Hangings and curtains.** *See* Upholstery.

**Harbours; quays:**

Sinking cylinders for wall foundations, Munn & others, 418.
Floating breakwaters to be used in forming, Saunders, 1015.
Pumping mud, sand, &c. from, Woodford & Woodford, 1551.
Excavator for use in making quay walls, Dean & Nairn, 1694.
Forming harbours of refuge in sands, Cooke & Thompson, 2164.
Sinking cylinders for wall foundations, Munn, 2743.
Electric-light apparatus for quays, Johnson (*De Meraisse*), [2[illegible].

**Hardening glass.** *See* Glass.

**Harmonicons.** *See* Musical instruments.

**Harmoniums.** *See* Musical instruments.

**Harness; saddlery:**

Leather substitute for making, Gandy, 52.
Saddle-girth tightener, Howard & Cox, 277.
Saddle-girths, Beck (*Steinbach & Co.*), 394.
Extendible horse-collars, Dufrené (*Dessner*), 438.
Warp fabrics for and method of making, Boncley, 451.
Adapting extensible steps to stirrups, Hutchinson, 509.
Elastic spring hook or fastening for traces, Schwanck, 61[illegible].
Artificial leather or cloth for, Block, 718.
Snap-hook for traces, &c., Johnson (*Nye*), 765.
Snap-hook for, Johnson (*Nye*), 766.
Stopping, urging on, &c. horses by electricity, Laycock, 9[illegible].
White metal for making mounts, Clark (*Le Marquand*), 61[illegible].
Attaching and releasing horses from vans, &c., Rowand, 5[illegible].
Forming receptacle in riding whip handles, Kain, 97[illegible].
Elastic rollers for horses, Coleman, 986.
System of harnessing, Morgan-Brown (*Maître*), 1116.
Mode of yoking horses, Kearton, 1232.
Making & attaching hame draughts & "terrets," Harlow, 13[illegible].
Riding whips and hunting crops, Hosking, 1279.
Supplying ashes to prevent horses slipping, Myring, 146[illegible].
Studs for, Page, 1504.
Saddles and numnahs for soldiers and civilians, Crichton, 1[illegible].
Preparing threads for saddlers' use, Forster, 1930.
Shackles for, Ramsay (*Low*), 1956.
Composition for softening and waterproofing, Wilkins, 2[illegible].
Whiffle-trees, Dietrich, 2065.
Nose device for stopping runaway horses, &c., Brodribb, 22[illegible].
Breaking in colts; controlling oxen, Brodribb, 2254.
Dressing or preparing leather for, Tombs, 2353.
Arrangement of check rein and kicking strap, Day, 2383.
Restraining runaway horses, Richards, 2582.
Saddle-girth tightener, Howard & Cox, 2618.
Maintaining tension of saddle-girths, Beck (*Steinbach & C[illegible]*
Shaping saddle-tree heads, &c., Edwards & Edwards, 2[illegible].
Fastening for splicing or uniting traces, Pearce, 3083.
French vegetable leather for, Tongue (*Jolissaint-Vonèche & [illegible]*
[*others*), 3[illegible].
Horse-brushes, Barker, 3329.
Constructing horse-collars in sections, Carr, 3360.
Applying magnets to curry-combs, Lyon, 3382.
Rein, tug, rump, and clamp buckles, Clark (*Reaser*), 3[illegible].
Automatically detaching traces, Clark (*Glover*), 3967.

**Harness; saddlery—*cont.***

Applying electric briquets or lighters to whips, Lake (*Van Tenac*), 4206.
Trace hooks, Meadows, 4228.
Driving revolving horse brushes, Martin, 4382.
Adjustable ventilating saddle, Lutwyche (*Cogent*), 4416.

**Harness for looms.** *See* Weaving (harness).

**Harrows.** *See* Tilling.

**Harvesting machines.** *See* Reaping.

**Hats; caps; bonnets; coverings for the head:**

Knitting, Clark (*Reed & Mulligan*), 115.
Curling the brims of felt or silk, Lees & Pidgeon, 260.
Softening fabrics for, Crosby (*Kellogg*), 324.
Forming bodies of caps, &c., Crosby (*Kellogg*), 325.
Pressing and ironing machines, Zysel & Warschawsky, 347.
Sewing-machine for straw hats & bonnets, Clark (*Legat*), 463.
Covering springs of spring or "Gibus" hats, Anquez, 914.
Binding edges of hat and bonnet shapes, Redhouse, 1184.
Binding & bordering bonnets and hat shapes, Hirschfeld, 1496.
Wiring bonnet and hat shapes, Gaudeau, 2040.
Decorating metal hat boxes with looking glass, Burton, 2208.
Advertising by means of hat stands, Smith, 2212.
Tip stretcher and machine for blocking, Grimshaw, 2229.
Perforating, to thoroughly ventilate same, Lochhead, 2306.
Sewing-machine for straw hats, bonnets, &c., Bland, 2368.
Smoking, travelling, & other caps; ladies' hats, Cadman, 2580.
Linings for balmorals, glengarrys, &c., Greenlees, 2762.
Felt hats and other head coverings, Bywater & Buckley, 2837.
Parementine for stiffening straw, Barlow (*Torlotin*), 3015.
Ironing and pressing, Milbourne, 3082.
Leatherized paper or cloth for, Kellogg, 3139.
Straw-plait sewing-machine, Heinrichs (*Schwalbe*), 3145.
Wiring and binding hat and bonnet shapes, Morand, 3234.
Stretching felt hat bodies, Eaton & Eaton, 3266.
French vegetable leather for lining or bodies of hats, Tongue [(*Jolissaint-Vonèche & others*), 3290.
Paper caps and bonnets for men and women, Loder, 3531.
Smoke helmet for firemen, &c., Brewer (*Loeb*), 3701.
Police helmets, military, and other caps, &c., Kenyon, 3914.
Making silk hats, &c. grease-proof, &c., Kenyon, 3914.
Wiring and binding shapes, Stubbs & Palmer, 4152.
Making composite helmets by moulding in lieu of sewing, &c., [Clarkson, 4237.
Helmets with dust curtain and linings, Clarkson, 4237.
Fabric for hats and foundations of hats, Hebblethwaite, 4305.
Wiring and binding hat and bonnet shapes, Grünbaum, 4371.
Binding edges of hat and bonnet shapes, Leber, 4485.
Helmets for divers, miners, &c., Boulcott, 4497.

**Hauling heavy bodies.** *See* Hoists.

**Hawsers (holding).** *See* Propelling ships.

**Hay (carting or loading).** *See* Carriages.

**Hay (drying).** *See* Drying.

**Hay-making:**

Collecting and trussing hay, Friedländer (*Jachimovics*), 266.
Machines with self-lifting flys, Salter, 1938.
Horse-rakes and machines for, Nicholson & Mather, 2291.
Adjusting, &c. tines of horse-rakes, Howard & Bousfield, 2363.
Horse-rakes, Cameron & Hill, 2376.
Horse-rakes, to facilitate "dumping," Rollins (*Rose*), 2392.
Springs, gearing, bushes, and hood for machines, Jeffery, 2414.
Gathering, elevating, and delivering hay, Gray, 2638.
Adapting hay gathering & leading machines for, Loader, 3009.
Self-dumping horse-rakes, Pellow (*Barclay & Kennedy*), 3295.
Gathering and pitching hay for loading, Wakefield, 3607.
Jointed or hinged teeth for hay "collectors," Lander, 3851.

**Head coverings.** *See* Hats.

**Healds for looms.** *See* Weaving (harness).

**Hearses and biers.** *See* Carriages.

**Hearthstones.** *See* Fire-places.

**Heat (collecting rays of).** *See* Photo-thermo, &c.

**Heat (measuring, &c.)** *See* Thermometers.

**Heat (utilising waste).** *See* Furnaces. Ovens, &c.

**Heating; obtaining and regulating heat:**

Petroleum vapour or air in gas-engines, Abel (*Daimler*), 71.
Preventing waste of gas used for, Loebl, 614.
Stove for heating water, George, 808.
Obtaining heat by friction, Fisher, 1239.
System of petroleum burners for, Jacquet, 1380.
Water, by reusing steam from boilers, Budge (*Miralles*), 1495.

**Heating; obtaining and regulating heat—*cont.***

Air or other gases, Abel (*Mathian & Solet*), 1545.
Supplying petroleum, &c. to apparatus for, Brown, 1701.
Tubular screw-apparatus for, Walker, 1886.
Air of furnaces of steam tram-cars, Barclay, 2201.
Using air-heating pipes of furnaces for, Clark, 2474.
Regulating heat in retorts or stills, Birrell, 2604.
Air for drying hops, malt, grain, &c., Baker & Forbes, 2766.
Cowl and screw apparatus for, Stephens, 2872.
Combining mineral oils with silica for burning, Grüne, 2891.
Bone-black charcoal, &c., Clark (*Gandolfo & Jarboe*), 3030.
Coal used in making artificial fuel, James, 3173.
Water by exhaust steam, Buckley, 3198.
Compressed air for motive-power, &c., Lake (*Mekarski*), 3498.
Retort for charring, distilling, deoxidising, &c., Lyttle, 3579.
Open boiler for heating liquids, Matthews, 3698.
Heaters for heating air; heat saving apparatus, Maw, 3699.
Self-acting electric thermo-regulators, Mori, 3904.
Regulating heat in evaporating pans, Bull, 4200.
Steam-boilers and radiators for, Kidd, 4257.
Air for compressed air-engines, Holt, 4316.
Regulating heat in brick and other kilns, Cowell, 4408.

**Heating feed-water.** *See* Steam-boilers.

**Heating or evaporating:**

Producing vapour in petroleum engines, Abel (*Daimler*), 71.
Concentrating sulphuric acid, Chivers & Chivers, 349.
Confectionery pans, Brown, 549.
Concentrating acids, saline, and other solutions, Potter, 653.
Vaporising hydro-carbon and volatile oils, Trotman, 715.
Applying Bunsen pumps for, Morgan-Brown (*Hagemann*), 965.
Fluids, Morgan-Brown (*Hagemann*), 965.
Salt and other pans by waste gases, Lockey, 1159.
Sugar in process of refining, Newton (*Matthiessen*), 1234.
Producing heat by friction for, Fisher, 1239.
Furnaces for concentrating soda lyes, Kuhlmann, 1265.
Tubular screw-apparatus for, salt, &c., Walker, 1886.
Saline and other liquids; working pans in sets, Bull, 2061.
Annular ovens or kilns for, Wood, 2076.
Water-level indicator, &c. for use in, Riley, 2354.
Arranging furnaces & kiln for heating salt pans, Lockey, 2382.
Joining pans used in concentrating sulphuric acid, Sauvée, [(*Faure & Kessler*), 2897.
Smoke consuming & inodorous furnaces for, Rabot, 2925.
Night soil in vacuo, Robey, 2928.
Preventing loss of heat in, and utilising waste heat, Maw, 3699.
Producing vacuum in salt and sugar pans, Maw, 3699.
Drying & raising temperature of air & gases in pans, Maw, 3699.
Packing flanges of pans and heating same, Maw, 3699.
Devices for securing lids of pans, Maw, 3699.
Vessels usable as evaporators, Maw, 3699.
Salt, borax, sulphuric acid, salt-water, &c. Lake (*Holden*), 3785.
Metallic alloys for apparatus for, Lake (*Holden*), 3785.
Liquids in water-proofing fabrics, &c., Clamond, 4176.
Saline & other liquids; arranging & working pans, Bull, 4200.
Pans for concentrating sulphuric acid, &c., Prentice, 4391.
Plating platinum vessels for concentrating sulphuric acid, [Prentice, 4392.
Vacuum pans; vacuum pumps, Fryer & Alliott, 4395.
Drained juice from fresh sea-weed, Perrier (*Pellieux & Mazé-*[*Launay*), 4502.

**Heating or warming carriages:**

By steam, Scott (*Haag*), 236.
By hot-air, Spurrier, 1516.
Steam-cars by the condensers, Alexander (*Rowan*), 2154.
By waste steam and heat from locomotive, Brown, 3097.
Boiler or hot-water stove for railway, Amory, 3284.
Combustible composition for, Lake (*Cassinelli*), 3504.
Hot-air apparatus for, Bonneville (*Grandjean*), 4318.
Hot-air apparatus for, Bonneville (*Grandjean*), 4319.
Hot-air apparatus for, Bonneville (*Grandjean*), 4510.

**Heating or warming rooms and buildings:**

Hot-air apparatus for, Mackenzie, 93.
System of heating towns and villages, &c., Cowper, 165.
Hot-air stoves for, Howarth, 240.
Hot-water fuel saving apparatus, Ormson, 317.
By air heated in stoves or fire-places, Doulton, 365.
Hot-air stove for, Lillie, 606.
By hot-air generated in gas-stoves, Kelen, 721.
By hot-air stoves and flues with internal gills, Kennard, 846.
Stove or fireplace for, Crichley, 859.
Boilers for hot-water apparatus; fixing same, Harlow, 1068.
Apparatus for heating water for, Hilton, 1206.
Hot-air and hot-water apparatus, Goddard & Massey, 1358.
Adapting petroleum burners to boilers for, Jacquet, 1380.
By hot-air, Spurrier, 1516.
Apparatus for warming air for, Landau, 1674.
Screw-apparatus for heating air for, Walker, 1886.
Regulating temperature of heated air for, Shorland, 1970.
By forming smoke-flues zig-zag, Hyatt, 2015.
By hot-air, water, or steam, Hughes (*Smith & Bates*), 2063.
Heat radiator for rooms, Hughes (*Smith & Bates*), 2063.

**Heating or warming rooms and buildings—*cont.***

By hot-air, Alexander (*Rowan*), 2154.
Rooms by waste heat from fire-places, Day, 2357.
Gas-stove for warming rooms, Holmes (*Sharp*), 2387.
Double warm air chamber or stove for, Rigby & Rigby, 2487.
By warm air issuing from mantel-piece, &c., Shorland, 2566.
Greenhouses, &c. by hot-water, Gray, 2577.
By air warmed in contact with smoke flue, Livesay, 2632.
Portable apparatus for greenhouses, halls, &c., Gadsby, 2707.
Saddle-boilers for, Lumby, 2968.
Saddle-boilers for, McLaren, 3041.
Open stoves with air-heating chamber for, Curtze, 3147.
Stove or apparatus for heating air for, Looker, 3174.
Boiler or hot-water stove for, Amory, 3284.
Petroleum stoves for, Rohde, 3339.
Portable combined heating & lighting apparatus, Bovd, 3372.
Boilers for heating water for, Hartley & Sugden, 3511.
Producing air currents for, Pate (*Cattell*), 3594.
Hot-air stove for, Waller, 3732.
By air heated at back of cooking stoves, Waller, 3732.
Hot-air apparatus for, Wright & Saul, 4029.
By zig-zag chimney pipes or flues, Hyatt, 4063.
By air heated in fire-places, Wavish, 4106.
Oil lamp stoves for, Rippingille, 4137.
Hot-water boilers for, Richardson, 4252.
Portable hot-air stove for, Bonneville (*Grandjean*), 4319.
By hot compressed gas from boiler furnaces, Preiswerk, 4324.
Vertical rectangular boiler for, Wright, 4419.
Hot-water apparatus, Bordone, 4491.
Portable and self-contained boiler for, Keith, 4506.

**Heating or warming ships or vessels:**

By hot-air, Spurrier, 1516.

**Heckling fibres.** *See* Spinning (carding).

**Heddles or healds.** *See* Weaving (harness).

**Hedges (cutting).** *See* Plants and trees.

**Height of objects (ascertaining).** *See* Sextants.

**Helioscopes.** *See* Optical instruments.

**Helmets.** *See* Hats.

**Hemp.** *See* Fibres. Spinning.

**Heraklin.** *See* Explosive compounds.

**Hides and skins.** *See* Leather.

**Hinges:**

Wrought iron, Tildesley, 3.
Spring hinges or door springs, Adams, 796.
For sewing-machine tables, Brewer (*Draper*), 1122.
Circulating and pin, for safes & strong rooms, Chatwood, 3626.
For carriage and other doors, Clark (*Gégnon*), 3743.
Spring, for show-case and other doors, Larard, 4221.
Or joints for clothes-horses or folding frames, Rowe, 4308.
Or joints for gates and like purposes, Rowe, 4308.

**Hoes; hoeing.** *See* Tilling.

**Hoists; raising, hauling, & lowering heavy bodies:**

Hydro-pneumatic cranes and, Fisher & Rutherford, 56.
Hydraulic engine for hauling or raising loads, Casson, 123.
Auger for fastening capstans, Jensen (*Bohlken*), 307.
Arranging winding machinery for mining, &c., Stevenson, 387.
Warehouse hoists or cranes, Barker, 432.
Lifts for discharging coal trucks, &c., Marillier, 497.
Crane counterbalance, Brunner (*Schnabel & Henning*), 503.
Elevating grain, salt, &c. from quays, &c., Goodwin, 559.
Actuating winding engines, Richardson & Ball, 564.
Variable power hydraulic cranes, Walker & Pflaum, 719.
Hydraulic capstan engines, Walker & Pflaum, 719.
Preventing power waste in inset cranes, Walker & Pflaum, 719.
Arresting and controlling device for screw-jacks, Wright, 754.
Safety apparatus for tubs or cages, Defty, 760.
Regulating and controlling motion of, Defty, 760.
Preventing accidents in winding-engines and, Ormerod, 801.
For pits or mines, Vivian & Blackburn, 891.
Combined capstan and windlass, Hartfield, 909.
Toothed gearing wheels for, Harfield, 910.
Making discs for disc breaks of, Harfield, 910.
Wrought iron pawl rims for capstans, Harfield, 911.
Teeth or stops of capstans or windlasses, Harfield, 911.
Hoisting and fixing blocks in erecting buildings, Holt, 931.
Hauling apparatus of engines, Howard & Bousfield, 1034.
Steam-crane levers, Browne (*Caillard Bros.*), 1028.
Hydraulic gear for sheer legs and cranes, Rendel, 1123.
Screw-jacks, Mac Leilan (*Sheward*), 1179.
Reversing gear for winding engines, Wakefield, 1282.
For raising show-cases, &c. in ships, Collins & others, 1444.
Steam-cranes for dredging, &c., Woodford & Woodford, 1551.

**Hoists; raising, hauling, &c.—*cont.***

Variable power hydraulic cranes, Bostius, 1631.
Steam excavator cranes, Mills (*Chapman & Souther*), 1698.
Windlasses or ships winding apparatus, Paul, 1795.
Hydraulic hoists, Clark (*Rochow & Matthiessen*), 1810.
Rectangular bracket or crane for building, Yeadon, 1897.
Portable sack elevator, &c., Sinkwell & Tooley, 1908.
Building hoists or elevators, Newton (*Andrews*), 1935.
Shackle for ships' blocks, Ramsay (*Low*), 1956.
Protecting door ways of building, Pickering, 1969.
Preventing accidents in hoists and shafts, Holt, 1989.
Antifriction bushes and sheaves for blocks, Bond, 2317.
Jack for adjusting, &c. railway rails, Ladd (*Fox*), 2407.
Crabs, winches, &c., Crossley & Crossley, 2469.
Preventing accidents in winding-engines and, Ormerod, 2488.
Safety winding apparatus for lifts, &c., Clark (*Massen*), 2670.
Travelling crane for gas works, Warner, 2610.
Derrick for life-saving apparatus, Rogers & Anderson, 2735.
Reel winch and multiplying gear, Rogers & Anderson, 2735.
Single and double purchase hoist, Batt, 2810.
Safety apparatus for cages, Mills (*Libotte*), 2911.
Self-sustaining lifting machines, Cherry, 3023.
Chain blocks; dinner and other lifts, Cherry, 3022.
Power travelling cranes or crabs, Ellis & Ellis, 3104.
Flexible pump or exhauster for cranes and other, Smith, 3125.
Direct-acting portable crane, Abel (*Hahn*), 3151.
Working winding engines, Johnson (*Sulzer & others*), 3170.
Raising and floating sunken materials, &c., Thomas, 3184.
Lowering apparatus for painters, &c., Kennedy, 3347.
Reducing friction in cranes, Lillie, 3355.
Clipping apparatus for submerged bodies, Parlour, 3445.
Differential pulleys, Gough & Altree, 3470.
Adapting cranes for excavating earth, King, 3536.
Differential hydraulic cranes & machinery, Fenby, 3564.
Hydraulic, for working theatrical scenery, &c., Brown, 3608.
Raising weights from under water by air bags, Job, 3618.
Elevators for raising coal, grain, &c., Lake (*Brown*), 3611.
Strong room hoists or cages, Chatwood, 3626.
Protecting door-ways of strong rooms, Chatwood, 3632.
Preventing slip, &c. in differential pulleys, Roberts, 3722.
Safety apparatus for lifts or, Stannah, 3748.
Working, &c. capstans, cranes, windlasses, and, Clark (*Perret & others*), 3845.
Valves for steam winding breaks, Pasfield, 3853.
Steam-engine for winding, Pearn & Pearn, 3875.
Windlass for raising, &c. ships' boats, Richmond, 3893.
Controlling movement of hoisting machinery, Bow, 3927.
Ships' windlasses; indicating cable strain, Thompson, 3932.
Arranging, &c. winches for expanding raft-boats, Dunn, 4006.
Automatic flat hooks or disengaging gear for, King, 4054.
Lowering pumps, &c. in mines, Armstrong & others, 4158.
Cup chain apparatus for raising and lowering, Potbetes, 4063.
Warehouse cranes or; carriage for same, Messrs. Barker, 4130.
Oiling axles of pulley blocks, Meakin, 4164.
Windlass for portable farm steam-engines, Fox, 4215.
Raising and lowering trucks in mines, &c., Houdaille, 4262.
Protecting jerk springs of cages, cranes, &c., Turton, 4310.
Ship's windlasses; adapting capstans thereto, Walker, 4321.
Safety apparatus for cages, Armstrong, 4364.
Radial travelling crane with circular track, Baillie, 4381.
Differential gear for raising or hauling, Ellington, 4398.
Safety apparatus for cages, Clark (*Carlile & Elliott*), 4425.
Rope apparatus for lowering persons & goods, Holthausen, 4461.
Gearing tackle for lifting or moving heavy weights, Morgan-Brown (*Stacy*), 4483.
Roller and rope apparatus, Pichler & Gardner, 4426.
Hydraulic apparatus for raising, &c. coal trucks, Thomson, 4522.

**Holes in ships (stopping or covering).** *See* Ships.

**Hoods or canopies.** *See* Awnings.

**Hooks:**

Elastic spring, for traces, couplings, &c., Schwanck, 612.
Snap-hooks, Johnson (*Nye*), 765.
Snap-hooks, Johnson (*Nye*), 766.
Automatic machine for making wire snap, Johnson (*Nye*), 767.
For connecting gas-stoves, &c. to burner nibs, Southby, 1211.
For upholstery purposes, Dearden, 1356.
For tram-cars, Morgan-Brown (*Johnson & Harding*), 2288.
With shank partly screwed, Hyatt & Hyatt, 3650.
Metallic alloys for anti-corrosive, Lake (*Holden*), 3765.
Automatic, for disengaging purposes generally, King, 4026.
For disengaging and coupling, Meadows, 4223.

**Hooks or sickles (brushing).** *See* Plants.

**Hoops; rings:**

Paper material for sieve or riddle, Gandy, 52.
Splaying and bending cask, Bradshaw, 364.
Rolling hoop-iron, Matthews, 1069.
Cornice pole and other rings, Taylor, 1921.
Sail hank, Ramsay (*Low*), 1956.
Forging hoops and rings, Carmont, 2403.
Gaff hoop or "panella," Da Silva, 2626.

**Hoops; rings—*cont.***
Sail hanks, Jones (*Clements*), 2548.
Rolling hoop-iron, Brownhill & Smith, 3368.
Sail hank, Méhu, 3502.
Making cotton-can and other rings, Brayshaw, 3618.
Machinery for painting hoop-iron, Heywood, 3660.

**Hop plants.** *See* Plants.

**Hops:**
Packing, Tebbs, 602.
Extracting wort, &c. from spent, Brown, 1806.
Tubular screw-apparatus for drying spent, Walker, 1886.
Crushing and pulping, for brewing, Walker, 1886.
Drying, by heated air, Baker & Forbes, 2766.
Steaming caked, to facilitate drying, Baker & Forbes, 2766.
Drying, by a centrifugal machine, Broadbent & Brown, 4274.

**Horn.** *See* Bone.

**Horological instruments.** *See* Clocks.

**Horse (mechanical):**
Or apparatus for traction purposes, Browne (*Chaine*), 3963.

**Horse-clippers.** *See* Shears.

**Horse-collars.** *See* Harness.

**Horse-hoes.** *See* Tilling.

**Horse-rakes.** *See* Haymaking. Reaping.

**Horses (preventing slipping).** *See* Harness. Horse-[shoes.

**Horses (stopping or controlling).** *See* Harness.

**Horse-shoes:**
Machinery for making, Lake (*Russell*), 48.
Studs, "pads," "clips," &c. for, Longsdon & Toppin, 176.
Making or punching nails for, Heard, 489.
Forming and roughing, Winder & Pritchett, 1475.
Applying caoutchouc buffers to, Wirth (*Continental Caout-*[*chouc, &c. Co.*), 1772.
Waterproofing, made of untanned hide, Yates, 2070.
Forming, bending, setting, and stamping, Pilté, 2072.
With grooves for elastic pieces, Gedge (*Barenne*), 3216.
Forming with V shaped grooves, &c., Price & Price, 4265.
With cells or recesses, Swain & Chamberlain, 4290.

**Hose or pipes.** *See* Pipes.

**Hosiery (knitting).** *See* Knitting.

**Hot-air engines.** *See* Air and gas engines.

**Hot-houses.** *See* Greenhouses.

**Hot-water boilers.** *See* Boilers (miscellaneous).

**Houses and coops for poultry, game, and animals:**
Portable folding, Peirce, 1190.
Folding coops for poultry and game, Padwick, 3919.

**Hulling grain and seeds.** *See* Grain and seeds.

**Hunting crops.** *See* Harness.

**Huts (portable).** *See* Tents.

**Hydrants.** *See* Watering.

**Hydraulic lifts.** *See* Hoists.

**Hydraulic motive-power.** *See* Water-power.

**Hydraulic-presses.** *See* Presses.

**Hydro-aërial wheels.** *See* Water-power.

**Hydro-carbon oils.** *See* Oils.

**Hydro-extractors.** *See* Drying.

**Hydrogen gas.** *See* Gas.

**Hydrometers:**
Stems for, forming scale on same, Hicks, 2701.
For testing salt-water, &c., Hicks, 2701.

**Hydro-pneumatic cranes.** *See* Hoists.

**Hydro-pneumatic motors.** *See* Air-engines.

**Hydrostatic motors.** *See* Water-power.

**Hydro-steam motors.** *See* Steam-engines.

**Hygrometers:**
Double thread arrangement for, Jensen (*Klinkerfues*), 167.

**Hypothonites.** *See* Mathematical instruments.

## I.

**Ice-breakers:**
Mechanical, for frozen seas, lakes, &c., Lumley, 1919.

**Ice-creams.** *See* Confectionery.

**Ice-houses or chambers.** *See* Refrigerators.

**Ice-making.** *See* Refrigerators.

**Illusions (optical).** *See* Optical instruments.

**Impure waters (treating).** *See* Manure.

**Incinerating corpses.** *See* Corpses.

**Incrustation (preventing, &c.).** *See* Oxidation.

**Indexing:**
Ledgers and mercantile account books, Pettitt, 2795.

**India embroidery (imitation).** *See* Sewing.

**India-rubber (treating and applying):**
In making packing and coverings for surfaces, Fish, 9.
To stuffing-boxes of air or gas springs, Dick (*Giffard*), 55.
To hind wheel of wheel skates, Perry, 233.
To soles of boots and shoes, Wetton, 359.
In packing pipe or tube joints or couplings, Atherton, 396.
To waterproof boots, Benson (*Williams*), 437.
In making face shields or respirators, Sinclair, 597.
To elastic breech plugs for ordnance, Newton (*Felt*), 600.
Combining sharp powders with, for brushes, Napier, 633.
Tires or rings for vehicles, Johnson (*Jeantaud*), 651.
Rubber surfaces for steps, &c., Haseltine (*Keene & Sawyer*), 700.
In making artificial leather or cloth, Block, 718.
To caps of feeding or other bottles, Pare, 800.
To suspension springs, Johnson (*Bañolas & Carlier*), 1023.
To cylinders of coffee-pulping machines, Lidgerwood, 1168.
Grinding, in turpentine, Butler, 1177.
To waterproof coverings for boots and shoes, Horrex, 1260.
To making teeth of wheels, Turner, 1268.
To preserving ships' bottoms, &c., Thomson, 1373.
Obtaining colored effects in vulcanite, Henderson, 1404.
In making corks, &c., Tongue (*Montangé & Brandely*), 1477.
Vulcanising water and air-proof fabrics, Young, 1549.
Balls or spheres of, to cocks or valves, Haigh, 1621.
To steam fire-engine valves, Wirth (*Kwaust*), 1641.
Buffers for horse-shoes, Wirth (*Continental Caoutchouc, &c.*[*Co.*), 1772.
To making artificial foliage, Browne (*Ballin*), 1934.
To railway buffers, Davis & Henwood, 2037.
Substitute for, for coating fabrics, Greening, 2059.
To joints of cold producing machines, Clark (*Giffard*), 2064.
To compounds for coating fabrics, Newton (*Requa*), 2074.
Vulcanising coated bags, &c., Newton (*Requa*), 2075.
In joining pipes or tubes, Murdoch (*Hoyois*), 2096.
From discarded carding-engine cards, De Montoison, 2110.
In making spinning and weaving appliances, Tice, 2275.
Covering iron rollers with vulcanised, Tice, 2275.
In making artificial flower buds, &c., Clark (*Person*), 2318.
For use in making castings & moulds, Haseltine (*Grasser*), 2467.
Forming rubber belting, Bousfield (*Scholes & Cowper*), 2482.
Recovering and using refuse, Heinzerling & Liepmann, 2495.
Cleaning and deodorising india-rubber of bottle-stoppers, &c.,[*Catlow & Hoyle*, 2547.
To railway buffers, Stone, 2695.
To packing air break cylinder rods, Steel, 2721.
To pitman bearings, Lake (*Harrison*), 2774.
To machine belting, Harris, 2957.
To draw bars of railway carriages, Holland, 3003.
In making packing for water valves, Hornsby, 3013.
To rollers in printing twine or cord, Waithman, 3109.
In making anti-fouling insulating compounds, Thomson & [Connolly, 3138.
To transmitters, &c. of sewing machines, Heinrichs (*Schwalbe*),[3145.
To wheel hubs of road carriages, Lake (*Leverich*), 3275.
In making band valves, King (*Chisholm*), 3297.
To pressure cylinders of printing machines, Johnson (*Le*[*Tellier & Verstraet*), 3483.
Packing for condenser tubes, &c., Johnson (*Normand*), 3516.
To feet for sewing-machines, Blake & Moss, 3520.

**India-rubber (treating and applying)—*cont.***
Caoutchouc or "tenacious vulcanite," MacLellan, 3578.
Recovering evaporated naphtha, &c. in applying, Barrow, 3675.
Applying, to floors of skating rinks, Moseley, 3697.
India-rubber painting tools or surfaces, Paget, 3773.
Tools, &c. for painting india-rubber surfaces, Paget, 3773.
For making stoppers, &c. of musical instruments, Ward, 3856.
A compound or "caoutchouc-aluta," Jenks, 3862.
Thermo-regulators and piles for use in vulcanising, Mori, 3904.
Embossing sheets of, for tobacco pouches, Macintosh, 3933.
To illuminating gratings to prevent fracture, Hyatt, 4063.
Curing conductors of telegraph cables, &c., Henley, 4117.
Brackets for roller skates, Beaumont & Pilkington, 4196.
In making bearing springs and break blocks, Scott, 4297.
Vulcanised, for making floor-cloths, &c., Dunbar & Lothrop, 4372.
Covering drawing rollers with, Chadwick, 4442.

**Indicating boiler pressure.** *See* Gauges.

**Indicating engine power.** *See* Steam-engines.

**Indicating position of rudders.** *See* Steering.

**Indicating speed of carriages:**
Of railway carriages and other vehicles, Beaumont, 3079.
And recording same, Napier, 4125.

**Indicating speed of engines and machinery:**
And direction of revolving shafts, Chadburn, 116.
Engine counters, Wood, 1121.
Revolutions of engines or machines, Clegg, 1410.
And direction of revolving shafts, &c., Wier, 1668.
Of engines to the drivers, Stroudley, 2086.
And revolutions of engine shafts, Peterson, 2330.
Revolutions of shafts and speed of locomotives, Barlow, 2948.
And direction of motion of engines & machinery, Wier, 3534.
And registering speed of trains, machinery, &c., Wier, 3534.
And revolving shafts, &c.; recording same, Napier, 4125.

**Indicating speed of ships.** *See* Ships' logs.

**Indicating weight.** *See* Weighing.

**Indicators (current).** *See* Current indicators.

**Indicators for cabs, &c.** *See* Registering.

**Indicators or "bearing feelers."** *See* Bearings.

**Indicators or gauges.** *See* Gauges.

**Indicators or yarn counters.** *See* Registering.

**Indigo.** *See* Dyes.

**Induction coils.** *See* Electricity (generating).

**Infants' feeding bottles.** *See* Bottles.

**Infusions.** *See* Extracts.

**Inhalers.** *See* Medical treatment of man.

**Injectors for steam-boilers:**
Double or combined and right or left handed, Lake (*Rue*), 976.
Using exhaust to assist in working, Metcalfe & others, 2984.
With an extra cone, Metcalfe & others, 2984.
Facilitating cooling of steam cone, &c., Dixon (*Rouzy*), 3117.
For aërating water and forcing same into boiler, Riches, 3750.
Forcing apparatus for feeding boilers, Cleminson, 3849.
General arrangement of, Jackson & Jackson, 3928.

**Injectors for use in making gas.** *See* Gas (making).

**Inks; inkstands:**
Supplying dipping cup of inkstands, Brooks, 475.
Composition for making inkstands, Cole, 495.
Or colors for printing upon wood, Whitburn, 605.
Supplying dipping cup of inkstands, Binko, 948.
Aniline black for making, Clark (*Grawitz*), 1630.
Printing, for transferring designs, &c., Holycake, 1941.
For printing on metal or other surfaces, Thacker, 2642.
Semi-fluid ink for autographic printing, Edison, 3762.
Applying electric briquets or lighters to inkstands, Lake (*Von Tenac*), 4206.
Cases for holding marking, Toiray, 4291.
Violet black, Wilkinson (*Joly*), 4484.

**Inlaying; inlaid work:**
Producing inlaid work in mother of pearl on glass, Kelly, 821.
Combining glass, &c. for mosaic work, D'Humy, 1710.
Encaustic tiles, tesseræ, and bricks, Hyatt, 2015.
Bricks, tiles, blocks, walls, &c., Hyatt, 2359.
Imitation mosaic or inlaid wood and straw work, Paton, 3119.
Parquetry and marquetry work, Thornton & Thallon, 3652.

**Inscribed plates for shops, &c.** *See* Sign.

**Insects & vermin (destroying and protecting from):**
Vermin in ships by carbonic acid gas, Weare, 292.
Cages, &c. for catching and collecting flies, wasps, bees, beetles, &c., Pellinger (*Costa & Rinaldini*), 1525.
Impregnating device and applying compounds, Wheeler, 1982.
Powder for, on plants and trees, Snelling, 1844.
Protecting iron and wood-work from, Nicoll, 1983.
Insect destroyer and fertiliser, Morgan-Brown (*Davis*), 2056.
Destroying moths in furs, &c., Lake (*Blake*), 2947.
Paint for protecting structures from, Gaine & others, 3312.
Brushes for destroying vermin on trees, &c., Barker, 3329.
Mosquito and fly protectors, Henderson (*Boivin*), 3388.
Preservative process for, fabrics, &c., Clamond, 4176.
Destroying, by gases and vapours, Loeser, 4266.

**Insulating; insulators:**
Legs of pianofortes, Miller, 24.
And reducing electric currents in water-meters, Deacon, 38.
Elements of thermo-electric apparatus, Wollaston, 58.
Rods or bars used for signalling on railways, Wynne, 1488.
Electric-telegraph wires or cables, Ewen & James, 1719.
Compound of ozokerit and india-rubber, Field & Talling, 1926.
Or coating electric-telegraph wires, Field & Talling, 1926.
Compound for, telegraph wires, &c., Greening, 2069.
Jacket or covering for steam pipes, &c., Mewburn (*Gay*), 2268.
Anti-fouling insulating adhesive compound, Thomson & Connolly, 3128.
Ball caster for non-conducting or, Bonneville (*Rousseau*), 3322.
Telegraph conductors of sea or land lines, Henley, 4115.

**Intaglio (cutting designs, &c. in).** *See* Engraving.

**Invalid furniture.** *See* Furniture.

**Invalid wheeled chairs.** *See* Perambulators.

**Iodine:**
Obtaining, by dynamo-chemical means, Clark (*Lontin*), 67.
Combined process of obtaining, Heinzerling, 2069.
Distilling sea-wrack for, Dufrené (*Glaizot frères*), 2813.
Obtaining, from sea-wrack, Alexander (*Herland*), 3681.
Making kelp for increasing yield of, Perrier (*Pellieux & Mazerolle*), 4002.

**Iron and steel.** *See* Smelting.

**Iron safes.** *See* Safes.

**Iron wheat.** *See* Plants.

**Ironing; irons:**
Bands for carrying articles for, Zysel & Warschawsky, 347.
Ironing and pressing machines, Zysel & Warschawsky, 347.
Irons for tailors and others, Zysel & Warschawsky, 347.
Grinding smoothing irons, Handyside, 1702.
Casting solid hand irons with brass faces, Benton, 1928.
Gas-stove for heating sad irons, Holmes (*Sharp*), 2367.
And pressing hats, seams of garments, &c., Milbourne, 3072.
Lid, chimney and handle of charcoal box-irons, Asher, 3346.
Plaited or folded fabrics for trimmings, &c., Bath, 3717.
Lamp stove for heating irons, Rippingille, 4137.
Stove for heating smoothing irons, Taylor, 4396.
Box, italian, and crimping irons; heating same, Pedder, 4421.

**Irrigating.** *See* Watering.

**Ivory.** *See* Bone.

## J.

**Jackets and coats.** *See* Wearing-apparel.

**Jacks or lifting jacks.** *See* Hoists.

**Jacquard apparatus.** *See* Weaving.

**Jails and prisons.** *See* Buildings.

**Jams.** *See* Preserving food.

**Japanning:**
Grocers' fittings or canisters, Ludlow, 2750.
Preparation for removing japan from wood, Hayhoe, 3614.
Machine for applying japan, Paget, 3661.
India-rubber tools and surfaces for, Paget, 3773.

**Jars ; jam-pots :**

Or vessels for wine, &c. ; cases for same, Gee, 111.
Stoppers for, and removing same, Thompson, 756.
Cases for packing, Paris & Adam, 1346.
Stoppers for, with expanding ring, Thompson, 1869.
Cap or cover stopper for, Thompson, 2217.
Forming skulls on poison, Johnson (*Caterson*), 2218.
Pouring or drawing oil or other liquids from, Randall, 2252.
Stoppers or covers for, and securing same, Rylands, 2358.
Cap or cover stopper for, Thompson, 2415.
For packing food & stopping same, De la Perrelle (*Guérin*), 2437.
Fabric for covering, in imitation of basket work, Paton, 3119.
Self-sealing cover or lid for, Soley (*Collinson*), 3260.
Forming earthenware jam pots and, Murray & Crighton, 3400.
Stoppers or covers for ; securing same, Rylands, 3731.
Stands or cases for, for counters and other places, Ross, 4087.
For packing meats, &c., Thompson (*Leuchtenrath*), 4098.
Protecting, for containing or transporting oils, varnishes, [spirits, &c., Ryland, 4368.
Yoke & lever stopper for, Clark (*De Quillfeldt & Hutter*), 4438.

**Jaw-boxes.** *See* Sinks.

**Jellies.** *See* Preserving food.

**Jet :**

Lathes for workers in, Howarth & Howarth, 322.

**Jet apparatus for impelling, forcing, exhausting, &c. :**

Intermittent steam jet for, liquids, gases, &c., Cook, 938.
Air or steam and applying same, Clark (*Worms de Romilly*) [1848.
Air-jet, applicable as motive-power, Clark (*Worms de Ro-* [*milly*), 1848.
For compressing air and gases, Preiswerk, 2184.
For giving motion to fluids, Cleland, 2312.
Nozzle piece for hose and other pipes, Tweeddale, 2597.
For heating annealing & melting pots, Ratcliff & Ratcliff, 3155.
Feeding hydrocarbon furnaces, Borland (*Borland*), 3178.
For cleaning boiler flues, Benson (*Crosby & McCabe*), 4032.
For propelling vessels, raising water, &c., Preiswerk, 4324.

**Jewellery :**

Lockets with means for punching cigars, Lewis, 137.
Combined seal and watch key, Wilcox, 406.
Composition for making black and colored, Cole, 495.
Lockets with secret fastenings, Dumont & Alfieri, 512.
Spring fastening for earrings, Garnier, 555.
Portable lathes for jewellers use, Cranston (*Scott*), 677.
Fastenings for dress ornaments, Cheshire, 764.
Snap-hooks for chains, Johnson (*Nye*), 766.
Making metal dies for, Lake (*Champney*), 842.
Electric alarm for jewellers' shops, Kitson, 855.
Earrings, bracelets, brooches, &c., Brookes (*Durrande*), 865.
Spring earring, Heilborn, 1324.
Combining concealed watch keys with seals and bars of chains, [lockets and charms, Dawson, 1517.
Forming watch chain swivel heads, Clark (*Edge*), 1615.
Fastening for chain bars and ornaments, Jacob & Brown, 1647.
Forming joints for brooch pins, Nelson, 1990.
Studs for dress fronts or ornaments, Greaves, 2019.
Compound for making, Thayer (*Smith*), 2513.
Applying calendars to lockets, Fisslthaler, 2868.
Fastening and improving appearance of earrings, Arnold, 2958.
Locket and ornament suspenders, Heilborn, 2969.
Making & connecting swivel loops, Edmonds & Edmonds, 3136.
Making jewel-cases in book form, Van Dyk, 3212.
Imitation steel ornaments and, Detenre, 3226.
Moulding imitation, to be set with stones, Detenre, 3227.
Snaps or fasteners for bracelets, necklets, &c., Smith, 3238.
Earring fastener and protector, Caldicott, 3437.
Hinging lockets, Shaw, 3591.
Air, water, and dust proof cases for lockets, Jephcott, 3662.
Magnetised lockets, bracelets, and brooches, Welton, 3727.
Magnetised finger rings, necklets, &c., Welton, 3727.
Compound or "caoutchouc-aluta" for making, Jenks, 3862.
Jointing wires to earring tops, Perks, 3881.
Ear pendants and securing same from loss, Johnson, 3940.
Lockets, brooches, bracelets, &c., Jackson, 4292.
Cases for ; opening and closing same, Quin, 4403.

**Joining driving belts.** *See* Bands.

**Joining pipes.** *See* Pipes.

**Joining rail ends.** *See* Railways. Tramways.

**Journals.** *See* Axles. Shafts.

**Jugs :**

Metallic handles for, Garfield, 664.
Network for protecting, Bonneville (*Perlau*), 1514.

**Jujubes.** *See* Confectionery.

**Jumping apparatus.** *See* Games.

## K.

**Kaleidoscopes.** *See* Optical instruments.

**Kegs.** *See* Casks.

**Kelp.** *See* Sea-weed.

**Kettles :**

Powder for removing incrustation in, Ludolph, 1776.
Lids and spouts for tea, Topham & Snushall, 1821.

**Keys.** *See* Locks.

**Keys or spanners.** *See* Wrenches.

**Kiers.** *See* Boilers (miscellaneous).

**Killing and dressing animals.** *See* Slaughtering.

**Kilns.** *See* Ovens.

**Kindling fires.** *See* Fuel (fire-lighters).

**Kitcheners.** *See* Fire-places.

**Kite or aërial apparatus.** *See* Aërial-machines.

**Kneading ; kneading-troughs.** *See* Mixing.

**Knee and elbow caps :**

Hydropathic knee caps, for rheumatism, Dale, 3168.
Combined magnetic & crystalline knee caps, Whiting, 3345.
Knee and elbow caps of paper, Loder, 3581.

**Knitting ; knitting-machines :**

Hats, caps, and other articles, Clark (*Reed & Mulligan*), 115.
Automatically producing striped work, Cooper & others, 470.
Thread guides for & cutting threads in, Cooper & others, 470.
Circular machines for plain and fancy hosiery, Marshall, 583.
Circular, with spiral loopers & feeders, Jensen (*Schmitt*), 870.
Tapering fabrics and ribbed and plain work, Robertson, 923.
Circular, for plain & figured fabrics & stockings, Dalton, 1124.
Ends or points of stockings and sock feet, Guivet, 1217.
Needle with hook & lever, Johnson (*Peberdy & Howson*), 1418.
Sewing selvages of stockings, &c., Guivet, 1579.
Fashioned circular looped fabrics, &c., Coltman, 1629.
Elastic fabrics for surgical purposes, Keywood, 1824.
Domestic machine for, Willson (*Parsons & Grist*), 1940.
Arranging, &c. parts of machines for, Frith, 2646.
Rotary and circular frames ; stop motion, Frith, 2971.
Circular latch needle loom, Lake (*Westcott & others*), 3000.
Take-up for circular looms, Lake (*Westcott & others*), 3000.
Latch needles, Tatham, 3003.
Adjustable covers for knitting-machines, Slater, 3391.
Two striped fabrics at one time, &c., Lake (*Appleton*), 3848.
Fixing tongue pin in needles, Roger-Durand, 4100.
Vertical or downright striped goods, Lowe & Lamb, 4260.
Producing embroidery or "chevening," Lowe & Lamb, 4260.
Circular, for plain or ribbed work, Marshall & Hewitt, 4293.

**Knives (table and other) ; forks ; steels :**

Knife and fork cleaning machine, Jucker, 182.
For cutting, &c. boot and shoe soles, Gardner (*Blake*), 206.
Household "help" for cleaning & grinding, Lake (*Bogle*), 395.
Guards and magnets for carving forks, Russell & Dominy, 398.
Hinged guards for carving forks, Haddan & Smith, 412.
Combining perpetual almanacks with pen, Howland, 524.
Table-rest for, Cave, 571.
For disintegrating matters in making manure, Cox, 723.
Making metal dies for forks, Lake (*Champney*), 842.
Hollow metal handles for table cutlery, Clark (*Taft*), 1153.
Combined steel, corkscrew, &c., Clark (*Taft*), 1153.
Convertible machine for sharpening, Simon, 1293.
Making knives and forks, Greaves, 1389.
Grinding steel cutters and knives, Handyside, 1702.
Rotary knife-cleaner, Atkinson, 1765.
Combined guard and rest for forks, Nicholson (*Gardner*), 2162.
Triangular, for cutting button-holes, Cramp, 2444.
Compound for making handles of, Thayer (*Smith*), 2513.
For match splint cutting machines, De Bowens, 2900.
Combination instrument with knife, Soul (*Ascough*), 2962.
Rotary apparatus for cleaning table cutlery, Elliott, 2995.
Cutlery boxes in book form, Van Dyk, 3212.
Nut for knife-cleaning machines, Follows & others, 3288.
Metallic compound for sharpening pen, Workman, 3515.
Table knives with removable blades, &c., Andrews, 3839.
Rolling blanks for table cutlery, Hallas & Stevens, 4276.
Rest and guard for carving forks, &c., Hughes, (*Landers*), 4494.
For turnip topping and tailing machines, Ross, 4507.
Combined pocket-knife and fork, &c., Wragg, 4534.

**Knobs (attaching to spindles).** *See* Locks.

**Knots (tying):**
Apparatus or machine for, Wise (*Kay*), 1461.

**Knotters for straining pulp.** *See* Paper (making).

**Kryptographs.** *See* Cryptographs.

## L.

**Labels:**
Detachable limit or value stamps for, Cooper, 728.
Instrument for affixing adhesive, Grafton, 735.
Applying flexible containers to label dampers, Binko, 948.
Printing metals for labelling, Barclay & Fry (*Baber*), 1168.
Using blank side of bottle, for advertising, Jaap, 1481.
Printing, Bartlett & Murray, 1746.
Luggage, to dispense with eyelets, Speight, 2681.
Combined holder and fastener for, Holme, 3270.
Printing, Powell & Dangerfield, 3533.
Apparatus or machine for affixing, Woodward, 4259.

**Lace; lace-making machines:**
Arranging twist lace machines, Carver & Pigott, 41.
Producing embossed spots, &c. on, Butler, 81.
Producing imitation lace, Gedge (*Cornely*), 306.
Producing ornamental twist lace fabrics, Scott, 617.
Producing gauze, net, and ornamental fabrics, Lindley, 683.
Making artificial, Clark (*Pournier & Meyer*), 923.
Looping warp and weft for shaded effects, Wallis, 1671.
Oiling threads in twist lace machines, Archer & Draper, 2272.
Producing twill and other effects, Lindley, 2505.
Producing "leno" or gauze fabrics, Lindley, 2505.
Ornamented muslin like fabrics, Sylvester & Bridgett, 2571.
Bobbin net or twist lace machines, Beardsley, 2644.
Embroidered fabrics on twist machines, Pickerill, 2724.
Producing linen or woven fabrics, Whiteley, 2961.
Latch needles, Tatham, 3003.
Frame, &c. for pulling thread-carrying bars, Newton, 3363.

**Lacquers.** *See* Varnishes.

**Lactopeptine.** *See* Medicines.

**Ladders:**
Extension, for firemen, Stevens (*Gilchrist*), 2978.
Chain, for fire-escapes, sweeps, &c., Fremion & Lazon, 3263.
Chain, for roofing, & repairing houses, Fremion & Lazon, 3263.
Safety, or pulleys, for draymen, Morgan (*Pieper*), 3708.
Cutting wood for sides of, Bradbury & Bradbury, 3900.

**Ladies' compendium.** *See* Chatelaines.

**Ladles and spoons.** *See* Spoons.

**Lamps; lanterns; chandeliers; lamp furniture:**
Miners' safety; supplying air to same, Edwards (*Boullenot*), 75.
Supplying heated air to burners, Newton (*Nobel*), 153.
For streets and other places, Taylor (*Taylor*), 192.
Lighting railway carriages by gas, Clark, 198.
For displaying fireworks, Brock, 247.
Machine for making paper wicks, Aspinwall, 249.
Cup & ball joint for gas pendants & chandeliers, Cannon, 294.
For rudders, to indicate course of steering, Briebach, 313.
Paraffin, &c. ("manx or triple flame lamp"), Murray, 332.
Burners for mineral oil ("brilliant"), Hughes & Turner, 392.
Adapting burners for either a globe or a shade, Porter, 430.
Supplying air to railway, mine, and signal oil, Martin, 468.
Gasaliers, chandeliers, candelabra, &c., Atkins & Torr, 594.
Compound pattrass for gasaliers, Atkins & Torr, 594.
Reflectors, perdifumes, weights, &c., Atkins & Torr, 594.
Preventing waste of gas used for lighting, Loebl, 614.
Railway, carriage, and marine signal, Price, 639.
Vaporising and inflaming volatile oils, &c. in, Trotman, 715.
Lighting railway gas lamps, Chambers, 734.
Railway, ship, and other signal oil, Morgan-Brown (*Doty*), 752.
Directing and regulating currents of air to oil, Sugg, 786.
Burners, galleries, and wick cases for oil, Sugg, 786.
Miner's safety, Robson & Ellis, 803.
Lighting, by electricity, Wier, 806.
Engine, siding, signal post, and tail, Dutton, 936.
Supplying air to, in mines, under water, &c., Abel (*Fayol*), 998.
Reading, for sleeping cars, Alexander (*Mann & Paterson*), 1017.
Illuminating clocks, signal lamps, &c., Challender, 1077.
Lighting shop signs, billiard tables, &c., Challender, 1077.
Supplying air to hydrocarbon oil, Rowatt, 1162.
Sliding chandeliers and gasaliers, Breeden, 1209.
Wick mechanism, burners, &c. for argand oil, Carr, 1235.

**Lamps; lanterns; chandeliers, &c.—*cont.***
Carbon or carbon-combined wicks for oil, Hellier, 1288.
Chimneys and globes to act as reflectors, Pulford, 1288.
Raising and lowering wicks in oil, Tongue (*Stobwasser*), 1342.
Protecting reservoirs & chimneys of, Bonneville (*Perrier*), 1354.
Mirrors or reflectors for, Jewitt (*Crosthwaite*), 1548.
Glasses for railway carriage roof, Defries, 1554.
Hardening and tempering glasses or globes, Siemens, 1667.
Oil lamp reservoirs to arrest overflow, &c., Lomax, 1642.
Admitting air to miners' safety and other, Landau, 1674.
Extinguishing miners' safety and other, Landau, 1674.
Supplying petroleum, naphtha, &c. to, Brown, 1701.
Combining glass, &c. for making ornamental, D'Humy, 1710.
Combining glass, &c. for chandeliers and shades, D'Humy, 1710.
Supplying air to diving lamps, Hughes (*Marechalle*), 1767.
Benzoline or similar spirit and oil, Loutit, 1818.
Holding and adjusting the flat wicks of, Lots, 1838.
For burning light and heavy oils, Johnson (*Mochring*), 1882.
Safety-lamp chimneys, Pinching, 1919.
Reflectors for carriage and other, Dixon (*March*), 2003.
Tempering glasses for, Royer de la Bastie, 2157
Paraffin oil, for railway carriages and ships, Shaw, 2268.
Petroleum; burners for same, Huch, 2304.
Electric, for use in water, mines, &c., Chauvin & others, 2414.
Toys to be used in connection with, Lake (*Michaels*), 2422.
Oil lamps and lamp-boxes for tram-cars, &c., Needham, 2439.
Supplementary shades or globes for, Sambridge, 2462.
Gas chandelier without water-cup and slide, Menson, 2530.
Lanterns for dissolving view apparatus, Hughes, 2663.
Lighting navigable channels at night, Johnson (*De Mersenne*), [2767.
Electric, for signalling, lighting, and attracting attention, [Johnson (*De Mersenne*), 2767.
Electric, for mining and nocturnal operations, Johnson (*De* [*Mersenne*), 2767.
Adjusting gas pendants to hang true, Lake (*Trudeau*), 2818.
Combining mineral oils with silica for burning, Grüne, 2891.
Sockets for bicycle, Carter, 2893.
Lighting railway carriages, De Pass (*Vidard*), 2916.
Portable, to admit of repair in case of breakage, Lucas, 3035.
Ships', signal, street, and other oil, Silber, 3046.
For burning hydro-carbon, colza or other oils, Palling, 3053.
Transforming oil lamps into night-lights, Palling, 3053.
Supplying, &c. oil to burners of reservoir & other, Dalton, 3068.
Gasaliers with whistles to show escape, Carter, 3102.
Gasaliers with spherical reflectors, Carter, 3102.
Light-producing apparatus, Borland (*Borland*), 3178.
Sign or lamp for tobacconists' shops, Kinder & Kinder, 3232.
Portable combined heating & lighting apparatus, Boyd, 3272.
Wire holders for chimneys and globes, Jewitt (*Rose*), 3440.
Adapting, for electric light, Prosser, 3466.
Dry slide for gas fittings, Lakin, 3490.
Adapting continuous ignition fuses to, Leonard, 3538.
Burners of benzoline, Dyer, 3565.
Mode of lighting strong rooms, Chatwood, 3628.
For lighting smoke-filled places, Brewer (*Loeb*), 3701.
Applying, to sewing-machines, &c., Wilson, 3724.
Raising and lowering chandeliers, &c. without weights, Tissme [(*Stobwasser & Co.*), 3749.
Extinguishing tube for wick-using, Pinkerman (*Presby*), 3752.
Producing draught in blast oil, by suction, Lavender, 3797.
Wickless burner for spirit or mineral oil, Horne, 4132.
Semaphore, wall, and fountain oil, Rippingille, 4137.
Argand and flat wick burners of oil, Rippingille, 4137.
Electric or "magician" lamp, Lake (*Van Tenac*), 4206.
Burner for hydrocarbon vapors & gases, Kidd & Hearsum, 4233.
Casting lamp pillars, Roberts, 4278.
Circular wick oil lamps for lighting & heating, Robins, 4457.
Wick mechanism for moderator and other, Robins, 4457.
Locks for miners' safety, Owens, 4476.
Supplying air to divers' and miners' lamps, Boulcott, 4497.
Safety-lamps for burning mineral oils, Soubeur, 4503.
For burning in strong currents of air, Lots, 4533.

**Land cultivators.** *See* Tilling.

**Landing stages.** *See* Platforms.

**Landings and steps.** *See* Buildings.

**Lanterns.** *See* Lamps.

**Lap machines.** *See* Spinning (batting).

**Lappets (ripping and clipping).** *See* Cutting.

**Lard:**
Utilising gases evolved in rendering, Lake (*Turner*), 2862.

**Lashing laces.** *See* Bands and belting.

**Lasts.** *See* Boots.

**Latches and bolts.** *See* Locks.

**Lathes for turning** *See* Turning.

**Latitude:**

Showing plane of observation in known parallels of, Newton [(*Allen*), 1423.

**Lattice-work; trellis-work:**

For railway carriages, buildings, decoration, &c., Rideal, 113.
Extending trellis-work, Causley, 1503.
For use in dyeing, &c. fabrics, Messrs. Marsden, 2845.
Working pegged lattice machines by steam, &c., Baker, 3566.

**Lavatories; washing-basins:**

Ventilating, Potts & Darnell, 272.
Stench traps for washing-basins, Buckley & Stock, 378.
Preventing waste of water in, Hellyer, 2620.
Vent clearer for discharge pipes of, Clark (*Hawley*), 3063.
Duplex and triplicate construction of basins, Shanks, 3188.

**Lawn-mowers.** *See* Reaping and mowing.

**Lead.** *See* Smelting.

**Leads (printers').** *See* Printing paper.

**Leather; treating hides and skins:**

Substitute for, Gandy, 52.
Raising tan liquor in tan-yards, Colebrook, 261.
Flexible or elastic casts for imitating, Loewenberg, 420.
Moulds for and producing imitation, Lake (*Knelles*), 486.
Cutting, for boot and shoe stiffeners, Lake (*Boivin*), 615.
Depilating skins; treating pelts, Granville & Timmis, 643.
Sheep skin "lashing laces," Granville & Timmis, 643.
Ingredients for and making artificial, Hardy (*Mions*), 687.
Copper plates for printing or ornamenting, Brown, 714.
Artificial leather or leather cloth, Block, 718.
Fleshing, scouring, &c. hides or skins, Turner & Page, 778.
Using balsamocarpon brevifolium for tanning, Christy (*Bamspacher*), 832.
Pulling, &c. hair from coney and other skins, Knowseldon, 1066.
Artificial leather-cloth, Hunstone & Thorpe, 1070.
Tawing and dressing skins, Gedge (*Molinier*), 1117.
As applied to making teeth of wheels, Turner, 1268.
Utilising spent tan, Murdoch (*Honnatj*), 1397.
Treating leather, for manure, Johnson (*Lissagaray*), 1484.
Compound for and producing imitation, Loewenberg, 1537.
Composition for softening and water-proofing, Wilkins, 1612.
Substitute for leather cloth and. Greening, 2059.
Water-proofing untanned hides, Yates, 2070.
Producing and utilising leather-pulp, Lake (*James*), 2089.
Recovering, from discarded cards, De Montoison, 2110.
Embossing and glazing, Lee, 2209.
Steam cleansing machine for, Webster, 2256.
Using leather pulp for spinning appliances, &c., Tice, 2275.
Dyeing, Smith & Berry, 2327.
Dressing hides or skins; composition for same, Tombs, 2333.
Boarding, by mechanical means, Lee, 2342.
Rotary cutter for boot and shoe soles and heels, Jackson, 2380.
Punching holes in, Heath, 2542.
Printing in oil colours on or decorating, Cadman, 2580.
Tanning by hydraulic pressure, Clavier & Deschamps, 2588.
Rubbing, fleshing, scudding, scouring, &c, skins &, Pitts, 2694.
Depilatory composition for hides and skins, Clark (*Sauvadet*), [2738.
Cutting out uppers of boots and shoes, Soper, 2777.
Ornamenting, cutting out, shaping, &c., Searle & Cook, 2886.
Coating fabrics for producing imitation. Loewenberg, 3050.
Treating hides & skins in a borax bath, Stark (*Herzen*), 3080.
Leatherizing felt, fibrous matter or tissue, Kellogg, 3139.
Making artificial, from clippings, &c., Kellogg, 3139.
Depilatory for hides and skins ("sodic potassic sulphide"), [Harpham & others, 3177.
Artificial or "French vegetable leather," Tongue (*Joliesaint-*[*Voněche & others*), 3290.
Converting "spent tan" into fuel gas, Lyttle, 3579.
Using eucalyptus and pangué in tanning, Masurier, 3634.
Fleshing, scudding, slicking, unhairing, &c. hides, Jones, 3679.
Covering, sizing, finishing, glazing, &c. hides and, Jones, 3679.
Applying magnets to, for curative purposes, Welton, 3727.
Fleshing and cleaning hide or skins, Bale & Wrest, 3745.
Embossing and glazing or polishing, Lee, 3846.
As applied to making "caoutchouc-aluta," Jenks, 3862.
Raw-hide shoe tips; dyeing and moulding same, Morgan-[Brown (*National Boot and Shoe Tip Co.*), 3895.
Tanning hides and skins, Clark (*Delhort*), 3911.
Screws for uniting thickness of; driving same, Angst, 3930.
Embossing sheets of rubber, &c. to imitate, Macintosh, 3933.
Producing figured surfaces on, Bonneville (*Charton*), 3956.
Producing imitation morocco, &c., Bonneville (*Charton*), 3956.
Water-proofing, Clamond, 4176.
Making "leatherette" or artificial, Pope, 4258.
Raw hide linings for bearings, Lake (*Hathaway & others*), 4456.
Substitute for, Lake (*Fell*), 4462.

**Leaves (imitation):**

Flexible or elastic casts for and making, Loewenberg, 420.

**Leaves (preserving).** *See* Plants.

**Leggings; gaiters:**

Fastenings for, Jenkinson, 98.
Combined lace-boot, legging, and gaiter, Kerby, 274.
Clips, slides, or fastenings for, Jones, 595.
Water-proofing and ventilating, Marshall, 1805.
Fastening for, Haddan, 2336.
Hydropathic, for men and horses, Dale, 3168.
Stud fastener for gaiters, Read, 3525.
Paper, for men and women when travelling, Loder, 3531.
Moulded fabric and sheet felt for, Vickers & Freestone, 3925.
Ventilating water-proof, Marshall, 3949.

**Lemons and like fruit:**

Table apparatus for squeezing, Piel, 4281.

**Lenses.** *See* Optical instruments.

**Letter-balances.** *See* Weighing.

**Letter-boxes and pillars:**

Bags or receivers for, and openings of, Stanley & Hale, 1749.

**Letter-press printing.** *See* Printing.

**Letters and figures:**

Producing illuminated or embossed, on glass, Kelly, 521.
Forming ornamental, of tile materials, Hyatt, 2015.
Forming lettered and figured tiles and bricks, Hyatt, 2359.

**Letter-weights:**

Applying call bells to or so as to form part of, Brooks, 476.

**Levels.** *See* Mathematical instruments.

**Life-boats:**

Construction, rig, and equipment of, Atkin, 92.
General construction of, Humble, 149.
Arrangement for launching, from land, Share & Calley, 377.
Or life-saving poops for vessels, Clark (*Malo*), 404.
Or vessels for ships; launching same, Stockwell, 1441.
General construction of reversible and duplex, Hodgson & [Sweet, 1478.
Constructing, steering, and propelling, Colwell, 1706.
Forming of iron or steel, Betteley, 2127.
Duplex unsinkable, Anderson & Burkinshaw, 2165.
Constructing, of two cassoons hinged together, Brown, 2240.
Life-boat rafts, Brown, 2443.
Construction, rig, and equipment of, Atkin, 2485.
Constructing, to increase buoyancy, Limousin, 2820.
Light, portable, and folding; shipping rudder, Henley, 2947.
Constructing metallic, Betteley, 3997.
Expanding raft-boats; folding keel for same, Dunn, 4006.
Collecting rain water on board raft-boats, Dunn, 4006.
Casings, stores, or tanks for raft-boats, Dunn, 4006.
Constructing to prevent capsizing, Cunningham, 4148.
A "launching quarter ship" for saving life, Campbell & Bal-[lardie, 4365.

**Life-buoys and preservers:**

Life-preserving mattresses and pillows, Clark (*Peck*), 49.
Life-rafts, Atkin, 92.
Internal floating "duck" for ships, Fewster, 293.
Fastening life-saving lines, Jensen (*Bohlken*), 307.
Life-raft, in form like a small skiff, Count de Liancourt, 390.
Adapting lights and signals to, Johnson (*Lamarre*), 409.
Life raft or apparatus for ships or vessels, Whyte, 487.
Using boats' breakers as, Dignum, 515.
Buoyant stuffing for, Cornish (*Cornish*), 577.
Water-proof life-preserving coat, Goudie, 712.
Life-belts and jackets, Watts, 896.
Using ships' bunkers or berths as life-rafts and, Watts, 896.
For vessels, Hodgson & Sweet, 1478.
Life and property preserving mattresses, Pike, 1485.
Life-rafts, Parratt, 1600.
Inflating life-saving appliances, Caffall, 1655.
And hauling apparatus for saving life at sea, Colwell, 1703.
Providing ships with life-rafts, Machattie, 1792.
Making ships' fittings to be available as, Nicoll, 1933.
Providing life-rafts with floats, Johnson (*Cone*), 2219.
Apparatus and wearing-apparel for saving life, Lloyd, 2235.
Life-rafts, Brown, 2249.
Suit & apparatus, Clark (*American Life Saving Suit Co.*), 2383.
Life-boat rafts, Brown, 2443.
Securing and launching life-rafts or deck-houses, Jolley, 2461.
Life-rafts, Atkin, 2485.
Life saving chest or trunk for seamen and others, Gade, 2498.
Life and property preserving bed or cushion, Haskoll, 2663.
Communicating between shore and wrecks, Dillon, 2665.
Combined mattress and box or chest for saving life, Gade, 2689.
Communicating between shore and wrecks, Rogers & Ander-[son, 2755.
Shoe or sandal for preserving life, Rowley, 2794.
Life-saving garment, Meiter, 2850.

Life-buoys and preservers—*cont.*

Life-saving corset or stays, Crisp, 2974.
Life-saving waistcoat with box for food, &c., Schönrock, 3086.
Life-saving garment or floating vest, Le Sueur, 3116.
Hand and foot propellers for use in saving life, Dunlop, 3236.
Life-saving garments, Richards (*Richards*), 3777.
Self-inflating life-buoys and rafts, Lloyd, 3801.

Lifts, lifting heavy bodies. *See* Hoists.

Light; lighting-power (measuring, &c.). *See* Photometers. Radiometers.

Light (collecting rays of). *See* Photo-thermo, &c.

Light (electric). *See* Electric-light.

Lighthouses; beacons; floating lights:

Light collector and reflector for, Clark (*Balestrieri*), 89.
Forming foundations for, on sand, Cooke & Thompson, 2196.
Signalling commercial code in, by night, Kinnersley, 2747.
Electric-light apparatus for, Johnson (*De Mersanne*), 2787.
Fog horns and sirens for; working same, Holmes, 3426.
Electric-light apparatus for, Prosser, 3466.
Reflecting apparatus for, Bessemer, 4552.

Lighting fires. *See* Fuel (fire-lighters).

Lighting gas. *See* Gas (lighting).

Limb for taking angles. *See* Mathematical.

Lime and its compounds:

Recovering & using waste lime from impure waters, Mackay, 91.
Oven for converting carbonate into caustic, Mackay, 91.
Forming calcic carbonate, Lyttle, 105.
Cylindro-conical lime-kiln, Hall, 346.
Producing sulphite of, Johnson (*Huet & Geyler*), 681.
Chloro-phosphate, phosphate, and acid phosphate of, Way, 686.
Crushing or disintegrating, Milburn & Jackson, 983.
Slaking lime in making bleaching powder, Mease, 977.
Kiln for burning limestone and saving fuel, Malpas, 1064.
Obtaining bone ash, Nicholas, 1116.
Furnaces for heating lime-kilns, Lockey, 1159.
Grinding, crushing, &c. by centrifugal force, Lucop, 1429.
Grates for fire-places of lime-kilns, Newton (*Carré*), 1634.
Carbonate of, Clark (*Moerman-Laubuhr*), 1888.
Producing sulphide of calcium, Hills, 1895.
Calcining lime by waste heat from gas retorts, Cleland, 2087.
Producing solid sulphate of, Parnell, 2148.
Heating lime kilns, Batchelar, 2299.
Forming cholride of lime, Riddell, 2316.
Producing mono-calcic phosphate, Whitthread, 2398.
Pentathionide of calcium, Griffiths & Thompson (*Guion*), 2460.
Obtaining chlorine for bleaching powder, Barnard, 2512.
Utilising heat from lime-kilns, Brierley, 2800.
Retort for calcining spent, &c., Thompson & Ladelle, 3535.
Calcining lime and deoxidating calcic sulphate, Lyttle, 3579.
Lime-kilns; car or waggon for same, Mumford, 3665.
Forming chromates and sulphates of, Townsend, 4162.
Water-proof covering for chloride of, Clamond, 4176.
Constructing throat of kilns to avoid waste of fuel, Finlay, 4186.
Composition for improving lime, Ducournau, 4444.
Continuous kilns or ovens, and heating same, Stone, 4451.

Lime-light. *See* Oxy-hydrogen.

Linen (disinfecting). *See* Disinfecting.

Links; shackles:

Cutting and casting, for chains or cables, Handyside, 376.
Snap-hooks for, Johnson (*Nye*), 765.
Using snap-hooks for forming, Johnson (*Nye*), 766.
Coupling, for railway carriages, Bland, 978.
Planing radius, Smith, 1916.
Shackles or hanks, Ramsay (*Low*), 1956.
For chain-cables, Lake (*Chamberlin*), 2516.
For railway coupling buffers, Talbot, 2568.
For carriage springs, Wise (*Anthoni*), 2828.
Welding chain & other, Lake (*Pittsburgh Chain, &c. Co.*), 2973.
Coupling, for railway carriages, Bland, 3242.
Bending, for chain harrows, Denton, 3438.
For dredger bucket chains, Simons & Brown, 3488.
Planing radius, Smith, 3560.
Shackle for attaching boats to davit slings, Richmond, 3893.
For working dredging buckets, Tucker, 4508.

Liqueur stands. *See* Bottles.

Liquid-meters. *See* Meters.

Liquids (not defined):

Absorbing and separating, Johnson (*Huet & Geyler*), 681.

Litharge. *See* Paints.

Lithography. *See* Printing paper.

Litters or stretchers. *See* Ambulances.

Loading carts and waggons. *See* Carriages.

Loading fire-arms. *See* Fire-arms.

Loading ships. *See* Ships' cargoes.

Lobster and shell-fish crackers:

Screw crusher apparatus, Beeston, 1570.

Lockets. *See* Jewellery.

Locking points and switches. *See* Railways

Locking signal levers. *See* Signals.

Locks; latches; door fasteners; keys:

Door and barrel bolts and staples for same, Tildesley, 8.
Shuts, tumblers, levers, &c. for door latches and, Tildesley, 9.
Latches for doors, casements, and shutters, Browning, 23.
Fasteners for railway waggon and other doors, Ellison, 38.
Attaching door knobs to spindles, Ayton, 84.
Buckle, double-handed, and other lever locks, Walton, 290.
Fastening apparatus, Melvill, 554.
Spring fastenings, Garnier, 555.
Lock for tip-carts, Whitelaw, 641.
White metal for furniture of, Clark (*Le Marquand*), 815.
Self-locking apparatus for boxes, Watson & Anderson, 903.
Spindles and fixing door handles to same, Harrison, 1051.
Registering the locking and unlocking of, Kaye, 1296.
Device for locking doors, Sonnenthal (*Mueller & Selig*), 1294.
Padlock or fastening, Dufrené (*Bazelaire*), 1527.
Or fastenings for carriage doors, Bilbrough, 1564.
Self-acting bolt or catch for folding doors, Hinde, 1565.
Padlocks, Raymond & Migotti, 1622.
Mortice locks, for right or left hand use, Elsley, 2032.
Railway carriage and other door fasteners, Kaye, 2058.
Combined door fastener, alarm, and call-bell, Bacon, 2269.
Fastenings for safes, strong rooms, &c., Niblett, 2501.
Self-acting latches or fastenings for doors, Tubbs, 2515.
Locking, &c. railway carriage doors, Kitson & Naylor, 2681.
Combined lock and latch for prisons, &c., Aubin & Wright, 2746.
Isolating lock mechanism from keyhole, Aubin & Wright, 2746.
Lock-bolts and spring latches, Aubin & Wright, 2746.
Boxes of door locks or latches, Kelley, 2780.
Locking doors by the act of shutting them, Wilks, 2781.
Sextuple, for safes, strong rooms, &c., Parkin, 2827.
Self-acting, for railway and other carriage doors, Ager, 2880.
Safety fastening for railway carriage doors, Edwards, 2946.
Self-acting catches for railway carriages, &c., Smith, 2951.
Latches, bolts, and other door fastenings, Coales, 3027.
For safes, &c. with timed movement, Brewer (*Hennessy*), 3078.
Fixing secret lock or catch to boxes and cases, Van Dyk, 3212.
Door locks and springs for same, Schuchardt & Broedel, 3246.
Locking flanges and fastenings for water supply apparatus, Newton, 3542.
Combination locks and keys for safes, &c., Chatwood, 3625.
Pin-key and key-bit locks for safes, &c., Chatwood, 3626.
Attaching door and other knobs to spindles, Macvitie, 3676.
Bolts for safes and strong rooms, White, 3690.
Padlock, Bazelaire, 3693.
Combination padlocks, Newton (*Orr & Bancroft*), 3711.
Self-acting bolts or catches for folding doors, Hinde, 3763.
Fastening for cupboards, &c., Edwards, 3935.
Automatic latches or fastening bolts, McGeoch, 4007.
For rail & tramway carriage & cab doors, &c., Clark & Hales, 4132.
Slam, for working outside doors & gates, Clark & Hales, 4132.
For doors and heads of carriages, Scott, 4297.
For miners' safety-lamps, Owens, 4476.

Logotypes. *See* Printing paper.

Logs (ships'). *See* Ships' logs.

Looking-glasses; mirrors:

Ornamenting and hermetically sealing backs of, Lewis, 237.
Mirror-backed brushes, Pearson, 516.
Ornamenting glass and frame of, Boggett, 536.
Fitting, to serve either as a glass or reading desk, Bell, 845.
Combining glass, &c. for frames of, D'Humy, 1710.
Adjusting pivotted mirrors, Clark (*O'Donoghue*), 1768.
Attaching receptacles to, for advertising, Herbert, 1969.
Silvering, by chemical means, Johnson (*Lenoir*), 1988.
Combining, with furniture, Weldben (*Barnes*), 2008.
Tempering mirror-plates, Royer de la Bastie, 2157.
Decorating tea-caddies, tin boxes, &c. with, Burton, 2298.
Adapting mirror-frames for advertising, Smith, 2313.
Ornamenting backs of toilet, Nicholson & Scovell, 2432.
Compound for hand glass frames, Thaver (*Smith*), 2513.
Movements for controlling swinging, Hampton, 3169.

Looms. *See* Knitting. Weaving.

**Looped or knitted fabrics.** *See* Knitting.

**Lounges and sofas.** *See* Furniture.

**Lowering ships' boats.** *See* Ships' boats.

**Lowering weights.** *See* Hoists.

**Low-water indicators.** *See* Gauges.

**Lozenges.** *See* Confectionery.

**Lubricating.** *See* Oiling.

**Lurries.** *See* Carriages.

## M.

**Macaroni.** *See* Preserving food.

**Machine-guns.** *See* Fire-arms.

**Machinery breaks.** *See* Breaks for machinery.

**Machinery wheels.** *See* Wheels for machinery.

**Magazines:**
Portable, for explosive compounds, Chambers, 682.
For gunpowder and other explosive compounds, Wright, 2955.
Gunpowder, for retail dealers, Roby, 4516.

**Magma:**
Extracting, from refuse waters, Hollings, 3809.

**Magnesia:**
Carbonate and ammoniacal phosphate of, Scott, 135.
Producing phosphate of, Box & others, 181.
Producing sulphate of, Clouet, 2441.
Precipitating double phosphates, Clark (*Bonnard*), 3162.

**Magnetic compasses.** *See* Compasses.

**Magnetism.** *See* Electricity.

**Magneto-electric machines.** *See* Electricity.

**Malt:**
Floors for and cooling, Mackay & Rae, 1073.
Tubular screw apparatus for drying damp, Walker, 1836.
Waggons and kilns for germinating and drying, Kunkler, 1971.
Adding maize flour to, for brewing, Clark (*Chiozza*), 2007.
Wire hurdle floors for kilns, Wise (*Herrmann*), 2138.
Using, in food for live stock, Fordred & Clarke, 2268.
Chemically decorticating grain for making, Sezille, 2471.
Drying, by heated air, Baker & Forbes, 2766.
Tile for drying floors of kilns, Woods, 2942.
Mashing, Lessware, 3338.
Heating drying kilns, Wright & Saul, 4029.
Roller mill for bruising, Demmer, 4218.
Drying, by hot compressed furnace gases, Preiswerk, 4324.
Mashing, Thompson, 4328.

**Malt-cake.** *See* Food for animals.

**Malt-liquors.** *See* Brewing.

**Mandrels:**
Adjustable, for use in grinding pulleys, &c., Handyside, 1702.
Mandrel stud for screw-cutting lathes, Muir, 1801.
Flexible, for bending metal pipes, Richards (*Orum*), 2885.

**Mangles:**
Portable, for family use, Bacon, 1074.
Combining, with washing machines, Mason, 1395.
Applying weight to rollers of, Summerscales & others, 2155.
Sectional rollers for machines for mangling, Selley, 3657.
Machine for cleansing, wringing, and mangling, Turner, 3847.
Constructing and heating, Pedder, 4421.

**Mantel-pieces:**
Applying cements to and constructing, Ross, 850.
Arranging warm air passages within, Shorland, 2566.
Ornamental covers for, Cadman, 2580.

**Manupede carriages.** *See* Velocipedes.

**Manure; treating sewage, impure waters, &c.:**
Purifying impure waters, &c.; obtaining manure, Mackay, 91.
Filtering sewage, dye, and polluted waters, Rydill, 150.
Disinfecting sewage, &c. & forming manure, Box & others, 214.
Raising sewage in town drainage works, Colebrook, 261.
Deodorising sewage by fumigation, Gill, 268.
Treating solid fæcal matters, &c. for manure, Scott, 378.
Treating & purifying sewage & polluted waters, Rydill, 399.
Baling stable manure in cities, Ackerman, 502.
Clarifying mixtures for sewage, &c., Hallsworth & Bailes, 573.
Chloro-phosphate and acid phosphate of lime, Way, 686.
Treating animal and vegetable matters for, Cox, 723.
Cutting, pulverising, &c. bones for making, Bradford, 727.
Mincing and mixing materials for, Milburn & Jackson, 933.
Treating excreta for, and making, Whitwham (*Bonnefin*), 1195.
Treating fæces for products, Newton (*Sindermann*), 1216.
From sewage, Morgan-Brown (*Harding & Johnson*), 1335.
Treating animal blood with an iron salt for, Steiner, 1419.
Treating phosphate of alumina and iron for, Spence, 1455.
From leather, wool, horn, &c., Johnson (*Lissagaray*), 1484.
Leached wood ashes from paper-making, Lake (*Dubuisson*), [1533.
Filtering and deodorising sewage, Pape, 1625.
Forming "alumino-ferric" for purifying, &c. sewage, Spence & [Spence, 1704.
Separating liquid and solid portions of sewage, Hill, 1745.
Barge for receiving & carrying sewage to sea, &c., Yule, 1759.
Using spent hops for, Brown, 1806.
Making, from animal blood, shoddy and rags, Snelling, 1844.
Drying sewage deposit and making manure, Anderson, 1845.
Deodorising blood to be used for manure, Smith, 1855.
Tubular screw-apparatus for drying, &c. sewage, Walker, 1886.
Treating excreta of towns for making, Coleman, 1954.
Precipitating and purifying sewage, Spence & Spence, 1961.
Treating sewage, house slops, & refuse for making, Wilks, 1972.
Treating sewage, &c. for filtering & other agents, Wilks, 1972.
Insect destroyer and fertiliser, Morgan-Brown (*Davis*), 2056.
Oven for calcining sewage matter, Wood, 2076.
Treating sludge from sewage tanks, Fryer & Alliott, 2225.
Centrifugal sewage filter, Odams & Blackburn, 2358.
Mono-calcic phosphate, Whitthread, 2398.
Refuse from chemically decorticated grain, Sézille, 2471.
From paper makers' lyes, Johnson (*Juron & Juron*), 2488.
Filters for sewage, Granhan, 2557.
Deodorising sewage, &c. by fumigation, Gill, 2621.
Residues from making bichromate of potash, &c., Heinzerling, [2669.
Treating sewage for and making, Hanson, 2675.
Treating redonda phosphate of alumina for, Jones, 2770.
Discharging sewage by tidal currents, Robinson, 2798.
Purifying waste waters and sewage, and making, Stevens, 2829.
Evaporating night soil in vacuo, Robey, 2928.
Converting blood into, Johnson (*Lissagaray*), 2960.
Purifying, &c. sewage & impure waters, Clark (*Bonnard*), 3162.
Pulverising ingredients for making, Pass & Pass, 3203.
From peat, nitrate of soda, and phosphates, Spence, 3629.
Obtaining ammonia, gas, &c. from sewage, Slater, 3668.
Residue in treating sea-wrack, Alexander (*Herland*), 3681.
Purifying sewage, dye, & refuse waters, Rawson & Slater, 3703.
Substitute for alumina, sulphate, &c. for, Rawson & Slater, 3703.
Siphons and traps for sewage tanks, &c., Field, 3747.
Carbonising and distilling, Johnson (*Hugard*), 3759.
Using leaves and bark of epilobium hirsutum for, Péaud, 3760.
Filtering sewage and using precipitate for, Le Tellier, 4061.
Filtering impure water and liquid refuse, Le Tellier, 4061.
Collecting and treating excreta, &c. for, Wildsmith, 4103.
Intercepting and collecting urine, Bannehr, 4122.
Intercepting and treating fæces, &c. in sewage, Bannehr, 4122.
Using insoluble matter from wool washing as, Ford, 4168.
Waterproof covering for guano, Clamond, 4176.
Burning vapours in drying sewage, &c., Milburn & Jackson, [4320.
Filters for purifying clear sewage, &c., Ramsay, 4420.

**Manure-distributors:**
Machine for spreading artificial manures, Jacob, 711.
To seeds, plants, &c. by capillary attraction, George, 1104.
Machine with drill ploughs for sowing manure, Parker, 1300.
Liquid manure carts, Bayley, 1447.
Impregnating device for, Wheeler, 1592.
Using horse-hoes as drills, Hircock & Hempsted, 1851.
Combining, with ordinary dung carts, Pamphilon, 2364.
Distributing manure broadcast, &c., Parker, 2853.
Farm yard manure distributing apparatus, Braby, 2887.

**Maps; charts; globes:**
Mounting and operating globes, Fitz, 187.
Stand for holding, Furrell (*Browne*), 241.
Mounting, on zinc, iron, and other plates, Tucker, 1734.
Machine for painting, Paget, 3661.
Ornamental framework for, Dodman, 4099.

**Marble.** *See* Stone.

**Mariners' compasses.** *See* Compasses.

**Marking and cutting velvets, &c.** *See* Cutting.

**Marking and registering.** *See* Registering.

**Marking or scribing wood.** *See* Cutting.

**Marking-ink:**
Cases for holding & shaking, and stretching linen, Toiray, 4291.

**Marmalade.** *See* Preserving food.

**Marquetry or inlaid-work.** *See* Inlaying.

**Mashing and mixing.** *See* Mixing.

**Matches; cigar-lights; match splints:**
Holder for, and means of lighting, Perry & Jones, 12.
Holding and igniting, Cadogan, 328.
Combined case for, and pipes, cigars, &c., Banford, 946.
Boxes for, Burchett, 1011.
Automatic splint cutter, Haseltine (*Young*), 1317.
Cord & case for lighting cigars, &c., Von Wojewodsky, 2527.
Boxes or cases for, Jarvey, 2703.
Applying calendars to boxes for, Fiesthaler, 2868.
Machine for making match splints, De Bowens, 2900.
Box for tobacco, papers, and, Bonneville (*Pichon*), 3018.
Continuous ignition fuses, Leonard, 3539.
Friction match composition for fuses, Leonard, 3539.
Propelling and igniting continuous fuses, Leonard, 3539.
Pocket electric briquet or lighters, Lake (*Van Tenac*), 4206.
Device or "steel" for striking fire for smokers, Gros, 4367.
Preparing wired splints for cigar-lights, Grubb, 4529.

**Mathematical and surveying instruments:**
Suspending, in equipoise, Chomel, 659.
Combined bevel, square, protractor, slope-level, spirit-level, [rule, and compasses, Ascough, 690.
Apparatus to facilitate drawing objects, Eversbed, 1178.
Measuring rules, Johnson (*Hastings & Johnson*), 1240.
Combining rules or measures with clamping machines, Gardner (*Abercrombie*), 1264.
Compasses for land surveying, Bousfield (*Iles*), 2309.
Theodolite, Young & others, 2697.
Combined bevel, square, protractor, slope-level, spirit-level, [rule, compass, and tool-holder, Soul (*Ascough*), 2962.
Levelling instrument, Barnicoat, 3168.
Measuring angles for mining surveys, Lake (*Schneider & Kraft*), 3196.
Combined dial, circumferentor, hypothonite, limb for taking [angles, level, protractor, scales, callipers, plummet, [goniometer, &c. (The "mensor"), Henderson, 4363.

**Matrixes.** *See* Dies.

**Mats:**
Lattice framework covering for, Rideal, 113.
Door, with passages for dirt, Johnson (*Roullier*), 874.
Combining glass, &c. for making, D'Humy, 1710.
For tea-urns; splash and smoke mats, Cadman, 2580.
Fabric for table mats and matting, Paton, 3119.
Applying magnets to matting, Lyon, 3382.
Ornamental framework for table, Dodman, 4099.

**Mattresses and beds.** *See* Upholstery.

**Meal and flour.** *See* Grinding corn.

**Measures:**
For marking and bias cutting velvets, &c., Cramp, 374.
Measuring piece goods and fabrics, Child (*Frömbling*), 1202.
Measuring rolls of cloth, &c., Lake (*Talcott*), 2561.
Conformator for measuring human figure, Clark (*Roudel*), 3022.
Measuring threads before spinning, &c., Keats & others, 3123.
Tape measuring and printing machinery, Chesterman, 3715.
Measuring shrunken woollen fabrics, Willans, 4108.

**Measures for liquids:**
In bottling liquids, Haseltine (*Bradford & Ferry*), 484.
Apparatus for use in public houses, &c., Lillie, 1533.
For preparing toddy, negusas, &c., Williams, 2041.
For bottling machines, Macdonell, 2551.
Registering counter for use with, Rimington, 2630.
In bottling beer, Gillman & Spencer, 2703.
For small quantities of hair oil, &c., Bolton, 4373.

**Measures for solids:**
Paper material for making corn measures, Gandy, 53.
Grain, seed, flour, cocoa, &c., Simon (*Zimmermann*), 2329.
Registering counter for use with, Rimington, 2630.
For seeds, drugs, &c. in making up for sale, Henderson, 4187.

**Measuring angles.** *See* Mathematical instruments.

**Measuring bores of guns and tubes.** *See* Gauges.

**Measuring distance of objects, &c.** *See* Telemeters.

**Measuring distance run by vehicles.** *See* Registering.

**Meat essences (extracting).** *See* Cooking.

**Meat (preserving).** *See* Preserving food.

**Meat-bread.** *See* Bread.

**Mechanical motive-power.** *See* Motive-power.

**Mechanical stokers.** *See* Furnaces.

**Medals:**
White metallic alloy for making, Clark (*Le Marquand*), 815.

**Medical treatment of animals:**
Composition, "dip," or "wash" for sheep, &c., McLeod, 981.
Preparing medicated food, Nicoll, 2348.
Arranging and fitting magnets for the, Wetton, 2729.
Curing foot & mouth disease, foot-rot, &c., Foulkes (*Foulkes*), [2988.
Hydropathic leggings and pads for, Dale, 3168.
Various methods of applying magnetism in, Lyon, 3382.
Preparations for curing foot and mouth disease, Finney, 3884.

**Medical treatment of man:**
Emollient and curative soap for, Green, 129.
Portable spirometer for, Mayer, 239.
Portable inhaler for invalids, Ellis, 785.
Preparation for curing or removing corns, &c., Lawrance, 796.
Isolating infectious patients, Currall, 858.
Ear-brushes for use in, Binko, 948.
Invalid urinals for bedridden persons, Batty, 1008.
Generating medicated vapors for inhalation, Harper, 1682.
Generating vapors for medicated, &c., baths, Harper, 1682.
Respirators to facilitate cleansing, Wordsworth, 2411.
Arranging and fitting magnets for, Wetton, 2729.
Oil for use in cases of rheumatism, &c., Foulkes (*Foulkes*), 2988.
Magneto-electric apparatus for use in, Kilner, 2906.
Hydropathic dresses for, Dale, 3168.
Electrical protectors for chest, lungs, &c., Rogers, 3187.
Flexible & magnetic & crystalline magnets for, Whiting, 44.
Magnetic chest protectors for, Whiting, 3345.
Various methods of applying magnetism in, Lyon, 3382.
Paper chest warmers and chest protectors, Loder, 3531.
Paper for hygienic purposes, Loder, 3531.
Adapting portable magnets for, Welton, 3727.
Medicated soap for, Green, 3891.
Galvanic battery for use in, Browne (*Kimball*), 3969.
Piles or batteries for use in, Lake (*Van Tenac*), 4206.
Antiseptic soap, pomade, cosmetic, &c., for, Cleaver, 4333.
Clinical thermometers, Webster, 4434.
Neck and chest protector (gorget & breastplate), Harris, 4487.

**Medicines:**
Capsules for enclosing medicaments, Johnson (*Tassis*), 742.
Medicated or medicinal discs, Barker, 1152.
Compressing soda and seidlitz powders, Hyatt, 1451.
Magnetic oxide of iron powders, Darlow & Fairfax, 2162.
Magnetic troches, cough-drops, &c., Darlow & Fairfax, 2162.
Magnetising articles of food as, Darlow & Fairfax, 2162.
Bottles or jars for poisons, Johnson (*Caterson*), 2218.
Obtaining medicinal qualities in bread, &c., Hyatt, 2287.
Grinding, and collecting same in form of dust, Hyatt, 2287.
Stoppers for bottles and vessels containing, Kline, 2776.
Medicine-boxes in book-form, Van Dyk, 3212.
An antisoorbutic and febrifuge, Eccles, 3371.
Compound for curing nervous diseases, Hanks, 3756.
Filling pockets, &c. with drugs for sale, Henderson, 4187.
Digestive compound with acids (lactopeptine), Petingale, 4474.

**Melting metals.** *See* Smelting

**Mensor (The).** *See* Mathematical instruments.

**Mercury:**
Smelting and condensing vapors of, Lyttle, 165.
Distilling mercurial ores, Newton (*Berreau*), 894.
Making red sulphide of, Clark (*Gruwitz*), 1604.

**Metal plates (printing).** *See* Printing.

**Metal waste (utilising):**
Old bale ties & narrow scrap for door bolts, &c., Tildesley, 4.
Scraps, old rails, &c., Browne (*Foundries & Forges Co.*), 139.
Scrap and old iron, Clark (*Eggum*), 256.

**Metal waste (utilising)**—*cont.*
Crop ends of steel rails or scrap steel, Sanders, 330.
Tin-plate scraps, Clark (*Larocque & Larocque*), 927.
Consolidating ferruginous waste, Spencer, 1368.
Tin-plate scraps, meat and fruit tins, &c., Morton, 1471.
Hammer or mill scales for iron, Sauvée (*Helson*), 2797.
Dis-used steam-boiler shells, Robey, 2928.
Scrap brass, copper, german-silver, &c., Holmes (*Atwood*), 3211.

**Metallic alloys:**
Producing aluminium bronze, Lyttle, 105.
For making steel, Browne (*Foundries & Forges Co.*), 120.
Purifying alloys of iron, steel, copper, lead, &c., Smith, 217.
For use in producing ammonia, Clark (*Maxwell-Lyte*), 563.
White metal or white, Clark (*Le Marquand*), 815.
Hard compound for cutters and cutting tools, Lynam, 1192.
Hard compound for various articles, Lynam, 3043.
For magneto-therapeutics, Welton, 3727.
For preventing, &c. oxidation, &c. of iron, Lake (*Holden*), 3785.
For use in evaporating apparatus, Lake (*Holden*), 3785.
For packing stuffing-boxes, Brown (*Bailly*), 4329.
Imparting resonance to britannia, pewter, and white metal, [Hughes (*Silliman & Wilcox*), 4445.

**Metallic ores (reducing).** *See* Smelting.

**Metallic powders (not defined):**
Absorbing and separating, Johnson (*Huet & Geyler*), 681.

**Metallic salts (obtaining, &c.):**
Perchloride of iron, Mackay, 91.
Ferric sulphide, Lyttle, 105.
Furnaces for melting down, Willans, 157.
Phosphate and sulphate of iron, Box & others, 181.
Sulphides of sodium, potassium, barium, &c., Lyttle, 627.
Reducing metallic sulphates to sulphides, Lyttle, 627.
Drying white lead, Bramham, 869.
Separating chloride of copper from gases, Deacon, 906.
Grinding white lead, Butler, 1177.
White lead, Brumleu, 1437.
Blocks of chloride of sodium or potassium, Brock, 1502.
Phosphide of iron, soda, and potassium, Townsend, 1862.
Sulphides of calcium, sodium, and potassium, Hills, 1895.
Sulphate of iron and of iron & alumina, Spence & Spence, 1961.
Photosulphuret of iron, Bousfield (*French Copper Co.*), 2042.
Sulphate of iron, Bousfield (*French Copper Co.*), 2042.
Evaporating brine for chloride of sodium, Bull, 2061.
Sulpho-acetate of iron liquor, De Montoison, 2110.
Salts of iron from discarded cards, De Montoison, 2110.
Sulphide of lead, Scoffern & Atcherley, 2284.
Carbonate of zinc, Rylands & Swindells, 2286.
Zinc sulphide, Griffiths & Thompson (*Guion*), 2402.
Substitute for lead carbonate, Griffiths & Thompson (*Guion*), [2402.
Sulphate, &c. of copper, Wolff & Byrom, 2422.
Chloride of zinc, Griffiths & Thompson (*Guion*), 2460.
Sulphide of zinc, Griffiths & Thompson (*Guion*), 2460.
Chlorides of lead, silver, and gold, Fitz-Gerald, 2481.
Sulphate and sulphide of lead, Fitz-Gerald, 2481.
Sulphate of copper, Dennis, 2559.
From cupreous solutions, Chadwick & Jardine, 2931.
Treating phosphates of, for products, Scott, 3202.
White lead of very pure color, Lang, 3435.
Phosphate of iron, Spence, 3628.
White lead; method of testing when making same, Milner, [4053.
Evaporating brine for chloride of sodium, Bull, 4200.
Forming sulphide of iron, White, 4495.

**Metals (amalgamating).** *See* Smelting.

**Metals (annealing & hardening).** *See* Annealing.

**Metals (applying to fabrics).** *See* Fabrics.

**Metals (bending by pressure).** *See* Presses.

**Metals (boring).** *See* Boring.

**Metals (casting).** *See* Casting.

**Metals (coating).** *See* Coating.

**Metals (cutting).** *See* Cutting.

**Metals (drilling).** *See* Boring.

**Metals (forging).** *See* Forging.

**Metals (grinding and surfacing).** *See* Grinding.

**Metals (moulding).** *See* Casting.

**Metals (ornamenting).** *See* Ornamenting.

**Metals (planing).** *See* Cutting.

**Metals (precipitating).** *See* Smelting.

**Metals (preserving).** *See* Preserving metals.

**Metals (puddling).** *See* Smelting.

**Metals (punching).** *See* Punching.

**Metals (refining and purifying).** *See* Smelting.

**Metals (rolling).** *See* Rolling.

**Metals (shearing).** *See* Cutting.

**Metals (shingling).** *See* Forging.

**Metals (smelting).** *See* Smelting.

**Metals (soldering).** *See* Soldering.

**Metals (upsetting).** *See* Upsetting.

**Metals (welding).** *See* Forging. Rolling.

**Meters for gas and fluids:**
For water and other liquids, Bonnefond, 46.
Measuring flow of water in pipes, Deacon, 50.
For pumps, to indicate quantity delivered, Rowland, 94.
Or measurers of fluids or gases, Cory, 286.
Rotary machine for measuring liquids, Johnson, 400.
Dry-gas, Crombie, 425.
Liquid, Wier, 504.
Liquid or fluid, Quick & Restler, 696.
Measuring chambers & valves of gas, Clark (*d'Hurcourt*), 770.
Liquid, Elborough (*Leopolder*), 797.
Indicator and self-acting alarm for wet-gas, Hill, 1040.
Water, Robertson, 1270.
Gauging supply of water to closets, &c., Harries, 1367.
Fluid, Brakell, 1393.
Water or fluid, Newton (*Ball & Fitts*), 1440.
Employing rotary engines as, Samain, 1542.
Liquid, Jennings & Pocock, 1599.
Water, Johnson (*Lämmerhirt*), 1867.
Water, and connecting same to mains, Tylor, 1857.
Liquid, Mills (*Maxim*), 1932.
Catching and returning dribblings to, Brookes (*Farjon*), 1994.
Index for gas and water, Bolton, 2177.
Liquid; coupling for same, Lake (*Marsland*), 2503.
Water, for large and small establishments, Macneill, 2594.
Fountain and other wet-gas, Goldsmith, 2639.
Water, Mills (*Maxim*), 2772.
Water, &c., Wirth (*German Waterwork Association*), 2884.
Water, Lake (*Shedd & Jenks*), 3070.
Adapting engines to serve as fluid, Lake (*Foster*), 3143.
Water, Fleury, 3247.
Liquid or fluid, Bartrum (*Powell*), 3316.
Illuminating-power gas, Sugg, 3334.
Measuring water feed to steam-boilers, &c., Doull, 3503.
Combined adjustable regulator and water, Newton, 3542.
Water, Clark (*Taylor & Kimball*), 3625.
Water and other liquid or fluid, Mathews, 3827.
Wet-gas, Urquhart & Andrews, 3857.
For water and other liquids, Bonneville (*Herbepin*), 3978.
Maintaining water-level in station gas, Sugg (*Arson*), 4427.
Station and test gas; maintaining water-level in, Sugg, 4428.
Water and other fluid, Jensen (*Lang*), 4490.

**Methylated spirit.** *See* Alcohol.

**Metrical system (teaching).** *See* Teaching.

**Mica:**
As applied to making water-gauges, Perkins, 224.
Employing, as a heat retainer, Seccombe & Talling, 562.

**Micromegas.** *See* Photography.

**Middlings or sharps.** *See* Grinding corn.

**Milk:**
Recovering sour and preserving, Gibbons & Allison, 2712.
Mixture for preserving cream, Ermatinger (*Sacc*), 3073.
Using cow's or goat's, in dietetic foods, Morfit, 3938.
Implement for opening cans of condensed, Helwig & Cox, 4455.
Tins for condensed, Groom, 4548.

**Milk-beer and liqueur.** *See* Beverages.

**Mill-bands.** *See* Bands and belting.

**Millboard.** *See* Paper (making).

**Milling fabrics.** *See* Fulling.

Millstones. *See* Stone.

Mincing machines:

Flesh, fish, &c. for domestic purposes, Milburn & Jackson, 933.
Offal, bone, &c. for manure, Milburn & Jackson, 933.
Meat or other substances, Barr, 3581.

Mineral oils. *See* Oils (mineral).

Miners' safety-lamps. *See* Lamps.

Mining and quarrying:

Compressed air-pump for draining mines, Rowland, 94.
Self-lubricating wheels and axles for corves, &c., Lupton, 148.
Rotary machinery for sinking shafts, Gay, 160.
Rotary machinery for cutting rock or stone, Gay, 160.
Rock-reamers for use in blasting, Mills (*Siprell*), 246.
Preventing or extinguishing fire in mines, Weare, 252.
Apparatus for draining mines, Colebrook, 261.
Blasting and mining powder, Espir (*Le Bricquir*), 291.
Pumping apparatus for use in sinking shafts, Davey, 323.
Working pumps by hydraulic pressure, Davey, 323.
Sawing machinery for cutting coal, Payton & Holmes, 343.
Compressing air for working engines in, Stevenson, 387.
Conveying, carrying or raising minerals, &c., Stevenson, 387.
Steam-pumps for draining, Stevenson, 387.
Riddling, screening, & loading coal, &c. in mines, Parker, 556.
Actuating coal-cutters, pumps, &c., Richardson & Ball, 564.
Reversing and expansion gear for engines, Greig & Eyth, 663.
Steel cutters for coal-cutting machines, Alexander, 674.
Compressing air for working coal-cutters, Alexander, 674.
Coal-cutting machinery: pick and cutting tools, Firth, 722.
Drilling and pressing down coal, Firth, 722.
Preventing overwinding in, Defty, 760.
Sinking shafts or pits, Firth, 769.
Preventing accidents from overwinding, Ormerod, 801.
Rotary mine ventilator, Cooke, 839.
Opening caps on which cages rest, Vivian & Blackburn, 891.
Closing eyes of mines; cage clutches, Vivian & Blackburn, 891.
Ventilating fans, Knott & Rudd, 916.
Heat or pressure indicator and alarm for, Bagot, 945.
Rotary mine ventilator, Cooke, 960.
Colliery wheels, Berry & Booth, 980.
Respiratory apparatus for use in, Abel (*Fayol*), 998.
Working pumps in mines, Brotherhood, 999.
Vehicles used in, Johnson (*Bañolas & Carlier*), 1023.
Cutting coal and other minerals, Foulis, 1036.
Hydraulic machine for cutting coal, &c., Foulis, 1140.
Elastic carriage for cutting mechanism, Foulis, 1140.
Raising water from mines by compressed air, Ingram, 1161.
Rotary ventilating fan, Radford, 1173.
Reversing gear for winding engines, Wakefield, 1282.
Oiling axle bearings of tubs or waggons, Walker, 1319.
Engine for working fans or ventilators, Brakell, 1393.
Machine for cutting coal, Brakell, 1393.
Engine for driving coal cutters, Payton & Holmes, 1567.
Ventilating mines by suction, Corfield, 1572.
Apparatus for extinguishing fire in pits, Caffall, 1655.
Rotary rock drills for, Walker, 1657.
Cutters for cutting coal; fixing same in holders, Munro, 1713.
Working percussive rock drills, Brown (*Burleigh*), 1766.
Direct-acting pump for, Wallace, 1816.
Injecting air for ventilating, Clark (*Worms de Romilly*), 1848.
Gunpowder blasting charges, Murdoch (*Müller*), 1885.
Coal-cutting wheels and chain machines, Dunlop & Rec, 1890.
Quarrying stone and other minerals, Jordan, 1944.
Preventing accidents from breaking of ropes, &c., Holt, 1980.
Reciprocating rock drill engine, Edwards, 2013.
Tools and tool-holders for cutting coal, Adamson, 2021.
Battery for firing mines, Gardner (*Mowbray*), 2132.
Compressing blasting powder, Murdoch (*Müller*), 2135.
Preserving mining struts, Gedge (*Richard*), 2144.
Fixing rails in, Gedge (*Paternotte & Larmoyeux*), 2227.
Magnetic compasses used in, Bousfield (*Iles*), 2309.
Self-acting cowls for ventilating mines, Wawn & Willcox, 2340.
Corves for better discharge of load, Plimsoll, 2370.
Preventing accidents from overwinding, Ormerod, 2438.
Lift-pumps for use in, Sagar-Musgrave & others, 2572.
Self-acting apparatus for lubricating corves, Ankers, 2593.
Lubricator for coal-tub journals, Burnett & Hornsby, 2611.
Corves and draw bars, &c. for same, Hudson, 2677.
Working rock, stone, coal, &c. drills by hand, Pyle, 2758.
Railways for mines, Bonneville (*Legrand*), 2759.
Machinery for shaft sinking, Penrice, 2999.
Safety apparatus for cages, Mills (*Libotte*), 3011.
Cutting, "shearing" or quarrying stone or rock, Adams, 3057.
Oiling axles and wheels of corves, &c., Ellis, 3165.
Working winding engines, Johnson (*Sulzer & others*), 3170.
Surveying instruments for, Lake (*Schneider & Kraft*), 3196.
Safety-blasting powder, Lake (*Courteille*), 3217.
Drilling or boring machinery, Macnab, 3281.
Using compressed air, water, &c. for blasting, Macnab, 3281.
Mining, blasting or disintegrating coal, &c., Macnab, 3281.
Combined double-action lift-pump for, Rowe, 3287.
Tipping coal and other minerals, Burrows & Flint, 3314.

Mining and quarrying—*cont.*

Tippler for tubs of different sizes, Burrows & Flint, 3314.
Rock-drilling or boring machines, Terrey, 3322.
Miners' shovels, Griffin, 3402.
Compressed air-motor for use in, Lake (*Makarski*), 3494.
Centrifugal machine for ventilating, Rammell, 3567.
Applying electricity to draft gauges, Pastorelli, 3706.
Sinking pit shafts; guides and rider for same, Galloway, 3740.
Electric apparatus for transmitting signals in, Zanni, 3746.
Valves for steam winding breaks, Pasfield, 3838.
Fixing cutters in holders for cutting coal, Munro, 3864.
Applying emery for cutting coal, &c., Young & Brown, 3867.
Automatic disengaging hook for hoists, &c., King, 4056.
Pumps; actuating same from bank, Armstrong & others, 4059.
Cup-chain apparatus for raising minerals, Pothetos, 4065.
Tipping wheel-barrow for mines, Johnson (*Philippe*), 4157.
Piles or batteries for firing mines, Lake (*Van Tunac*), 4288.
Raising and lowering trucks in, Houdaille, 4302.
Bearings for axles of coal-tubs; oiling same, Bainbridge, 4304.
Protecting jerk springs of lifts or cages, Turton, 4310.
Winning or getting coal, Dingley & Ackers, 4356.
Hand-drilling and breaking down apparatus for, Dingley & Ackers, 4356.
Combined circumferentor, &c. (The "mensor"), Henderson, 4363.
Safety-apparatus for cages, Armstrong, 4364.
Fireless steam-engine for use in, Fidler, 4377.
Safety-apparatus for cages, Clark (*Carlile & Elliott*), 4425.
Truck or trolly wheels; connecting same, Souheur, 4430.
Lamps and helmets for use in descending foul mines, Boulcott, 4467.
Compressed air and other motors for use in, Wernekinck, 4621.

Mirrors. *See* Looking-glasses.

Misers. *See* Excavating.

Mitrailleuses. *See* Fire-arms.

Mitreing wood. *See* Cutting wood.

Mittens. *See* Gloves.

Mixing; mashing; stirring; agitating; kneading:

Clay with crushed ore for smelting, Lyttle, 105.
Different substances during crushing, Cole, 110.
Peat, Morgan-Brown (*Verdier*), 654.
Manure, cement, concrete, Milburn & Jackson, 933.
Pug-mill for preparing clay for tobacco pipes, Rankin, 942.
Mashing and commingling, Lessware, 1063.
Mills or crushers for mixing mortar, cement, &c., Ward, 1147.
Chopped-up peat, Conradi (*Kesseler*), 1252.
Pug-mills of brick machines, Coward, 1381.
Agitating spent tan in retorts, Murdoch (*Homssif*), 1397.
Pug-mill for mixing material for fuel, &c., Kinsey, 1442.
Kneading raw peat, Hall & Bainbridge, 1460.
Kneading crude peat for making fuel, Lake (*Dodge*), 1773.
Tubular screw-apparatus for, malt, wort, &c., Walker, 1964.
Feeding or mixing grain during grinding, &c., Riches, 1982.
Amalgamating machines, Wiggins & Carvell (*Clouser*), 1974.
Two or more liquids and a soluble body, Williams, 2041.
Kneading clay, peat, &c., Jensen (*Schlickeysen*), 2124.
Mode of agitating pulp in making paper, Cooke, 2136.
Mechanical dough kneading trough, Heinz, 2424.
Cowl and screw apparatus for, Stephens, 2872.
Revolving drum for agitating coagulated blood in drying same, Johnson (*Lissagaray*), 2[illegible].
Mixing materials in making artificial fuel, James, 3172.
Combined clay heating and pugging mill, Prestage, 3182.
Pug-mill for pugging clay, peat, &c., Pollock, 3233.
Mashing and mixing, Lessware, 3338.
Beating, churning, or mixing apparatus, Morier, 3534.
Worts for distilling purposes, Wilson, 3855.
Driving mechanical stirrers, Wilson, 3855.
Oleaginous seeds after crushing, King (*Lowther*), 4043.
And kneading dough, &c., Pfleiderer (*Freyburger*), 4116.
Mashing malt or grain, Thompson, 4328.
Soap, paints, concrete, mortar, &c., Degener (*Weiler*), 4589.

Monetary documents. *See* Cheques.

Money tills or receptacles:

Tell-tale, to facilitate receiving and changing, Griffin, 122[illegible].
Till register, Britten, 4450.

Moorings:

Elastic spring hook or fastening, Schwanck, 618.
Electric-light apparatus for, Johnson (*De Meresse*), 22[illegible].

Mops. *See* Brushes.

Mordants; mordanting fabrics, &c. *See* Dyeing.

Morocco (imitation). *See* Leather.

**Mortar:**
Mills or crushers for mixing, Ward, 1167.
For fire-proofing buildings, Hyatt, 2015.
Grinding pans for mortar mills, Pollock & Powley, 2530.
Mixing, Degener (*Weiler*), 4560.

**Mortars.** *See* Fire-arms.

**Mortising, tenoning, and slotting.** *See* Cutting.

**Mosaic-work.** *See* Inlaying.

**Motive-power (air).** *See* Air and gas engines.

**Motive-power (gas).** *See* Air and gas engines.

**Motive-power (miscellaneous):**
From expansion of oil, glycerine, alcohol, &c., Boyman, 67.
Gravity motor for sewing-machines, &c., Clark (*Cayce*), 1007.
Lever mechanism for tricycles, &c., Bodel & others, 1559.
Apparatus for increasing power, Henderson (*Vaillant*), 1654.
By changing gravity or buoyancy of vessels revolving in liquids, [Lüdeke, 1771.
By using centripetal and centrifugal forces, Stalkartt, 2631.
Utilising rolling action of vessels, Deverell & Tower (*Deverell*), [2890.
From gravitation of receptacles by displacement of fluids, [Colborne & St. George, 3239.
By expansion of gases in presence of liquids, Brin, 3274.
By multiplied force of springs, Lake (*Wenmaekers*), 3501.
Treadle mechanism for propelling carriages, &c., Farries, 3552.
Obtaining mechanical movement from light, heat, or actinism [(" radiometer "), Crookes, 3860.
Spring motors for light machinery, Lake (*Manson*), 3869.
By falling weights, Gamboni, 4334.

**Motive-power (steam).** *See* Steam-engines.

**Motive-power (water).** *See* Water-power engines.

**Motive-power (wind).** *See* Air and gas engines.

**Moulding bricks.** *See* Bricks.

**Moulding cigars.** *See* Tobacco.

**Moulding metals.** *See* Casting metals.

**Moulding plastic materials.** *See* Casting plastic.

**Moulding sugar.** *See* Sugar.

**Moulding wood.** *See* Cutting wood.

**Mouldings; beadings; cornices:**
Forming with wooden cores covered with metal, Larard, 3031.
Hand apparatus for "striking up" or working out, Beynon, 3113.
Combining rotary cutters for cutting, Clissold, 3190.
Forming hollow parts of wood, Bradbury & Bradbury, 3800.
Glazed, for exterior of buildings, Lipscombe, 4055.
Compound or material for, glaze for same, Baggeley, 4067.

**Mowing.** *See* Reaping.

**Muffles.** *See* Furnaces.

**Muffs; tippets; boas; victorines:**
Knitting muffs, Clark (*Reed & Mulligan*), 115.
Boas, victorines, muffs, and muff bags, Kosminski, 522.
Boas, victorines, muffs, and muff bags, Kosminski, 1727.

**Mules.** *See* Spinning (twisting).

**Mungo.** *See* Rags.

**Mural fresco paintings.** *See* Paintings.

**Music:**
Music stool, Rider & Hutchence, 383.
Portable leaf-turning apparatus, Gilmore, 386.
Leaf-turner for use in place of music stand, Gilmore, 386.
Duplex telephone, Johnson (*Gray*), 974.
Adding pockets to inside of portfolios, Watt, 1552.
Printing, Bartlett & Murray, 1746.
Adjustable stands for, Johnson, 1777.
Mechanical leaf-turner for stands or desks, Valette, 2373.
Vacuum apparatus for turning over leaves of, Snell, 3061.
Mechanical leaf-turner, Browne (*Demaret*), 3122.
Mechanical leaf-turner, Edmonds, 3513.
The "desideratum" for teaching piano, &c., Atha & Terry, 3966.
Rest or support for, Wheeler, 4022.
Cases for, Quin, 4403.

**Musical instruments:**
A "piano-harp cabinet organ," Hunt (*Matthews*), 6.
Insulating legs of pianofortes, Miller, 24.
Molyneux's pianoforte actions, Brockbank, 315.
Pianofortes, harmoniums, and organs, Rider & Hutchence, 383.
Stamping reed frames for harmoniums, &c., Gouverneur, 452.
Cutting out reed frames for harmoniums, &c., Gouverneur, 453.
Musical boxes and clocks, Weill & Harburg (*Grosclaude*), 528.
Piano-organs, Weill & Harburg (*Grosclaude*), 528.
Orchestrions and like, Weill & Harburg (*Grosclaude*), 528.
Holding and tuning pianoforte strings, Burling, 616.
Cottage and other upright pianos, Roberts & Roberts, 636.
Shifting key-boards for transposing music, Ellis, 741.
Mouthpieces for, with an elastic face, Mills (*Conn*), 782.
White metallic alloy for making, Clark (*Le Marquand*), 815.
Check actions of pianofortes, Rogers, 963.
Tool for trimming pianoforte hammers, Mott, 1269.
Key for adjusting screw stops of hammer heads, Mott, 1269.
Glass sound boards for concertinas, organs, &c., Steinfelser, 1328.
Concertina ends or "tops" and bellows, Steinfelser, 1328.
Machine for working organ and other bellows, Brakell, 1393.
Combined reed & string violins, &c., Hamilton & others, 1585.
American organs, Rousseau, 1755.
Pedals for pianos ("tonic pedal"), Newton (*Wolff*), 1785.
Magnets for electric stops for organs, Faulkner, 1800.
Self-resisting plank levers for pianos, Howell, 1979.
String & reed organ ("string organ"), Hamilton & others, 2029.
Stop for harmoniums, pianos, &c., Hamilton & others, 2029.
Chromatic flute to facilitate fingering, Carte, 2071.
Grand pianofortes with longer strings, Wornum, 2223.
Causing pianos to imitate the banjo, Burling, 2558.
Organ, harmonium, & piano keys or manuals, Montgomery, 2945.
Concertinas, harmonicons, accordions, &c., Montgomery, 2945
Pianos for transposing music, Norminton, 3051.
Organ, harmonium, & piano keys or manuals, Montgomery, 3193.
Concertinas, harmonicons, accordions, &c., Montgomery, 3193.
Glass sounding boards for pianos, Monckton, 3307.
Glass flutes, clarionets, organ-pipes, &c., Monckton, 3307.
Annealed glass tongues for harmoniums, &c., Monckton, 3307.
Tuning-key for pianos and harps, Tench, 3308.
Electro-motor for working, Johnson (*Camacho*), 3416.
Insulating caster for pianos, Bonneville (*Rousseau*), 3522.
Key or finger board ("natural finger board"), Brown, 3719.
Stringed ("The harmonic seraphlute"), Ward, 3856.
Adapting concertina keyboard to pianos, harps, &c., Ward, 3856.
System of stringing pianos, Ward, 3856.
American organs, &c., Morgan-Brown (*Rousseau*), 3923.
Pianoforte wrest-planks, Newton (*Wolff*), 3943.
Harmonium reed-boxes; operating air valves, Claude, 4156.
Harmonium, accordion, organ, &c., reeds, Smith, 4242.
Obtaining difference of pitch and quality of tone, Smith, 4242.
Producing expression in harmoniums, Evans, 4283.
Pipe organs for dwelling houses, Barber, 4553.

**Mustard.** *See* Preserving food.

## N.

**Nail-brushes.** *See* Brushes.

**Nails; spikes; rivets; dogs:**
Making rivets & setting same in leather, &c., Lake (*Bray*), 100.
Chisel pointed cut nails, Rogers (*Mullholland*), 161.
Split spikes for railway rails, &c., Lake (*Whittemore*), 162.
Nail plates for horse-shoe and other nails, Heard, 489.
For boots and shoes, Edmondson & Wadsworth, 657.
For soles and heels of boots and shoes, Derigny & Tallon, 717.
Feed mechanism for nail and tack making machines, Bell, 799.
Forging, &c. blanks, spikes and rivets, Whittaker, 992.
Pointing cut nails or spikes, Summers, 1340.
Forming rivet heads and softening rivets, Brown, 1607.
Heading nails, spikes, and rivets, Wells (*Johnson*), 1754.
Instrument for extracting, Elliott (*Converse*), 1778.
Machine for heading rivets, Davies, 1786.
Automatic feed for nail cutting machines, Hutton, 2479.
Cutting, holding, heading, & forming, Bates & Thornton, 2612.
Spikes for fixing chairs to sleepers, &c., Atkinson, 2733.
Casting small malleable cast iron nails, Maddock, 2757.
Forming crimping tacks, Clark (*Williams*), 3231.
Spikes, nails, & dogs for railways; securing same, Newman, 3384.
Cutting shoe bills or sprigs, bill brads, &c., Southwood, 3469.
Nail-cutting machine, Haseltine (*Wickersham*), 3444.
Screw-nails, tacks, brads, and spikes, Hyatt & Hyatt, 3650.
Metallic alloys for anti-corrosive, Lake (*Holden*), 3785.
Double sprigs and vis-nails, Thwaites & Thompson, 4003.
Fixing railway and other spikes or dogs, Lawrence, 4426.
Arranging spike making machinery, Lake (*Haddock*), 4513.

**Name plates.** *See* Sign, &c. plates.

**Naphtha:**

Recovering, evaporated in india-rubber works, Barrow, 3075.
Obtaining, from creosote oil, &c., Bresson, 4296.

**Nautical instruments (not defined):**

Suspending in equipoise, Chomel, 659.
Brackets or "orderlies" for suspending, Madden. 944.
For determining rule of the road at sea, Gray, 1113.
Supporting, in ships to keep equilibrium, Anderson, 1992.

**Necklets (trimmings for).** *See* Trimmings.

**Neckties; cravats; scarves; bows:**

Spring scarf clip or adjuster, Nelson, 145.
Fastener for scarves, cravats, and, Walker, 762.
Imitation bows or, and means of securing to collar, Koch, 1059.
Internal spring for holding, in position, Kosminski, 1727.
Combined collar-stud and cravat fastener, Brockell, 2298.
Fastening cravats, neck and other bows and, Littlehales, 2310.
Attaching, to button or collar stud, Le Maistre, 2419.
Fastening for bows. scarves, and ties, Heilborn, 2969.
Fabric for, ("camelia silk"), Mewburn (*Graissot*), 3757.
Fasteners for, Mappin, 3832.
Producing designs in metals on ladies' scarves, Andrew & [others, 4541.

**Necropolis coffins.** *See* Coffins.

**Needles; needle-threaders; crochet-hooks:**

For single thread lock-stitch machines, Clark (*Legat*), 463.
Sliding crochet-hooks and handles for same, Devenport, 483.
Swaging and cutting needle blanks, Trabue, 661.
Automatic machine for making, Wirth (*Neuss*), 705.
Crochet-needles and hook sheaths for same, Shrimpton, 787.
For securing upholstery buttons, Cox & Hosmer (*Norwood*) [1067.
Needle-threader, Pocknell, 1191.
For sewing-machines, Turner, 1268.
Knitting-machine, Johnson (*Peberdy & Howson*), 1418.
Shank for sewing-machine, Heath, 1586.
Hooks for boot-sewing-machines, Keats & Greenwood, 1703.
For surgical and other purposes, Oppenheimer (*Holland*), 1707.
Ring & wavy shaped, &c. for sewing-machines, Hughes, 2466.
Rotating, for making fishing and other nets, Patrick, 2830.
Latch, for hosiery and lace trades, &c., Tatham, 3003.
For shuttle sewing-machines, Elliott, 3077.
Sewing-machine, Turner, 3507.
Boxes or cases for holding, Jensen (*Kænig*), 3563.
For sewing-machines, Perkins, 3663.
Machine for polishing; feeding mechanism, Milward, 3725.
For sewing-machines, Mothersill, 3769.
For use in cutting pile fabrics, Brookes (*Wattinne & Roettger*), [3836.
For sewing-machines, Bartleet & Johnson, 4048.
Fitting crotchet-hooks to handles, Bartleet & Johnson, 4048.
Fixing tongue pin in knitting-machine, Roger-Durand, 4100.
Curved, for bag sewing-machines, Webster, 4146.
Polishing wire for making, Harding & Harding, 4178.
Threaders for sewing-machine and other, Kay, 4238.
For boot and shoe sewing-machines, Mills, 4279.
For sewing-machines, Allwood, 4339.

**Neguses (preparing).** *See* Beverages.

**Net or lace machines.** *See* Lace.

**Nets; netting; netting-machines:**

Producing wire-netting, Lindley, 663.
Coating wire-netting. Moore, 831.
Drying & finishing mosquito netting, Newton (*Palmer*), 1457.
Weaving or forming fishing and other nets, Patrick, 2830.
Working wire-netting machines by steam, &c., Baker, 3566.

**Nicolline.** *See* Charcoal.

**Night-commodes.** *See* Water-closets.

**Night-lights.** *See* Candles.

**Night-soil (treating).** *See* Manure.

**Nitrogen:**

Producing, in and for electric-light apparatus, Kosloff, 441.
Producing, in and for electric-light, Brewer (*Kosloff*), 2767.

**Nitro-glycerine.** *See* Explosive compounds.

**Nitroline:**

For making "vigorite," Nordenfeldt (*Bjorkmann*), 2459.

**Notices (public).** *See* Advertising.

**Noxious vapours and gases (preventing, &c.):**

Neutralising sewer or drain gas, Gill, 268.
Excluding, from buildings, Potts & Darnell, 272.
In carbonising materials, Weare & Isherwood, 326.
In making manure from solid fæcal matters, &c., Scott, 372.
Stench traps, Buckley & Stock, 378.
In drains, sewers, &c., Rydill, 399.
Trapping water-closets and other places, Pope, 448.
In sewers, drains or culverts, Williamson, 602.
In treating fæcal matters, Newton (*Sindermann*), 1216.
From sinks, water-closets, and urinals, Snell, 1262.
Sink and other traps, Middleton, 1506.
Arranging closet valves to prevent return of, Haigh, 1612.
Removing and purifying sewer gases, Whitley, 1672.
Purifying drain and sewer gases, Landau, 1674.
Disinfecting and deodorising, Popoff, 1693.
Deodorising sewer gas, Cross, 1813.
Carbonaceous powder for, Wilks, 1972.
Treating & utilising, from sewers, works, &c., Lake (*Turner*), 2046.
Carburetting and burning, Lake (*Turner*), 2046.
Trapping and ventilating drains, cesspools, &c., Bannner, 2091.
Ferruginous compound for decomposing, Lyttle, 2406.
Double seal stench trap, Wilson, 2545.
Neutralising and deodorising sewer and drain gases, Gill, 2681.
Ventilating stench trap, Lanyon, 2715.
Ventilating water-closet traps, Dodd, 2801.
In evaporating alkaline lyes, &c., Rabot, 2925.
From chamber utensils, commodes, slop pails, &c., Dixon, 2982.
Stench traps, Lake (*Adee*), 3001.
In making varnish and dryers, Spence (*Lefebvre & Co.*), 3164.
Forming seamless lead traps, Lake (*Du Bois*), 3646.
Floodway or stench trap for, Clark (*Morrell*). 3822.
Casting lead or earthenware traps for, Lake (*Du Bois*). 4026.
In distilling coal, Blewitt, 4303.
In drying sewage, fæces, blood, &c., Milburn & Jackson. 4328.
Ventilating and purifying sewers, Parker, 4378.
Trap for drains, sewers, cesspools, &c., Clark (*White*), 4526.

**Nozzles for hose and other pipes.** *See* Pipes.

**Numbering or printing cheques, &c.** *See* Printing.

**Numerical plates for cabs, &c.** *See* Sign.

**Numnahs or saddle-cloths.** *See* Harness.

**Nut-crackers:**

Screw crusher apparatus, Beeston, 1570.

**Nuts; washers:**

For fusible plugs of steam-boiler fire-boxes, Clark, 89.
Lock-nut and washer for railway fish-bolts, Bayliss & Jones, 174.
Untapped nuts for screw-bolts, Marsden, 177.
Rolling bars for nut blanks, Clark (*Johnson*), 199.
Washers or packing pieces, Ingram, 235.
Locking nuts of screw-bolts for railways, &c., Cunliffe, 238.
Tapping screw threads into washers, Taylor, 321.
Forming six or eight sided screw-nut blanks, Halley. 444.
Lock-nut and washer for rail joints, Myles (*Lewy*). 676.
Making spring washers at one operation, Grover, 772.
Cutting, punching & flattening nut blanks, Whittaker, 902.
Tapping nuts, Heap, 1137.
Lock screw-nuts, Harris, 1222.
Making "hot pressed" nuts, Abel (*Charles & McKain*), 1260.
Swages, punches, and nicking chisels for nut-machines, Abel [(*Charles & McKain*), 1260.
Tapping nuts, Walton, 1388.
Making nuts ready for tapping, Jensen (*Wagener*). 1421.
Facing or shaping, Conradi (*Sack*), 1469.
Forming, so as to prevent waste of metal, Rogers, 1504.
Locking screw-nuts, Clark (*Bates*), 1639.
Making washers from prepared paper. Ludolph, 1752.
Tapping nuts, Gee (*Allin*), 1973.
Lock-nut for bolts, Hobson, 2142.
Locking screw-nuts, Ball, 2187.
Lock or jam nuts, for screw-bolts, &c., Wiles, 2216.
Securing nuts, on through bolts of rock drills, Reynolds, 2257.
Lock-nuts for brush sockets, Longbottom, 2268.
Shaping nuts; setting tools, Smith, 2353.
Forming screw-nuts, Jensen (*Gustafson*), 2475.
Cutting circular flat rings or iron washers, Smith, 2357.
Partially making untapped nuts, Davies & others, 2546.
Washers for carriage and other axles, Wise (*Anthonsl*), 2582.
Screw-nuts with ratchet teeth, Follows & others, 3298.
Making and hardening nuts, Johnson (*Barba*), 3415.
Nut or coupling for sectional steam-boilers, Suckling, 3494.
Forming nuts; locking nuts and washers, Carlile, 3730.
Jointed washer for tube stoppers, Mace & Brewster, 3871.
Shaping, facing, forming hole in, & tapping nuts, Whitley, 3948.
Locking railway fish-bolt and other nuts, Frost, 3973.
Locking screw-nuts; washers for securing nuts, Strype, 4075.
Cutting, pressing, and punching screw, Clark (*Morisset*), 4128.
Lock-nuts; rolling nut blanks, Thompson (*Casin*), 4248.
Lock-washers for screw-bolts and nuts, King, 4404.
Securing nuts on bolts and studs, Stewart, 4526.

# O.

**Oakum.** *See* Ropes.

**Oars.** *See* Propelling ships.

**Oil (motive-power from expansion of).** *See* Motive-power.

**Oil-cake:**

Cutting and paring edges of seed and other, Dobson, 794.
Envelopes or wrappers used in making, Eskrett, 1498.
Obtaining compressed, Odling, 2477.
Die-boxes of oil or seed cake-presses, Thompson, 3654.
Paring or trimming edges of, Virtue, 4042.

**Oiling; lubricating; oil-cans; oil-feeders; oilers:**

Axles of rotary cellular engines, Boyman, 67.
Bearings and journals of railway-cars, Smith, 126.
Journals of axles, North (*Tomlinson*), 130.
Wheels and axles of coal trams, corves, &c., Lupton, 143.
Lubricator for shafts, axles, &c., Jeyes & Turner, 205.
Bushes of copping rail tubes, Elce, 366.
Moulds in brick-making machines, Fawcett & Allen, 645.
Spindles of spinning machines, Bonneville (*Martin*), 777.
Revolving shafts and axles, Somerset & Hayes, 1020.
Self-lubricating bearings, &c., Newton (*Murfey*), 1025.
Bobbin spindles in singeing yarns, Jagger & Jagger, 1142.
Lock-nut for grease cups of engines, Harris, 1223.
Axle bearings of mining tubs or waggons, Walker, 1319.
Cylinders, &c. of steam & other engines, Hare & Barton, 1385.
Oil-cans for oiling spindles, Kaye & others, 1387.
Oil for, from spent tan, Murdoch (*Honnaij*), 1397.
Self-oiling bearings for pumps, Woodford & Woodford, 1531.
Oiler for sewing and other machines, Harrison & Mabson, 1575.
Combining pumps with oil-cans, Johnson (*Ireland*), 1757.
Anti-galvanic lubricant for pistons and valves, Prior, 1809.
Cutting tools of lathes, Burlock (*Wood*), 1914.
Composition or lubricating oil, Gedge (*Honoré*), 1923.
Substitute for oil and grease for, Wilkins, 2012.
Lubricating packing for machinery, Smith, 2078.
Shuttles in waxed thread sewing-machines, Ashe, 2204.
Threads in twist lace machines, Archer & Draper, 2272.
Self-acting apparatus for, corve axles, Ankers, 2593.
Lubricator in form of an axle-box, Burnett & Hornsby, 2611.
Axles, shafts, connecting rods, &c., Burnett & Hornsby, 2611.
Rubbing parts of horse-clippers, &c., Adie, 2640.
Spindles and journals of spinning machines, Hindley, 2670.
Axle-boxes, Beattie, 2792.
Bearings, Jones, 2822.
Oil-can for sewing-machines, Bishop (*Bishop*), 2920.
Solidified petroleum for, Morgan-Brown (*Goldsmith*), 2922.
Pressers of brick, tile, &c. making machines, Duncan, 3034.
Dry lubricating lining and bearings, Clark (*Lathrop Anti-frictionate Co.*), 3148.
Automatically oiling axles and wheels, Ellis, 3165.
Lubricators; casings for same, Coux des Roseaux, 3203.
Spindles of spinning machinery, Gill & others, 3296.
Throstle frame spindles and spindle bearings, Grether, 3370.
Automatic lubricators for bearings, Alley, 3413.
Rake arm rollers of reaping-machines, Hornsby & others, 3482.
Compound or lubricating oil, Chapman (*Green*), 3484.
Moulds in making bricks and tiles, Hamblet & Davies, 3556.
Automatic suet lubricator, Hughes, 3685.
Spindles of mules and twiners, Walker & Pickford, 3741.
Lubricating rotary steam-engine pistons, Moore, 3803.
Screw pivots of water and other meters, Mathews, 3827.
Rollers used in embossing and glazing leather, Lee, 3846.
Air and gas pumping machinery, Eaglesham & Rigg, 3969.
Brick and other moulds, Emmet, 4141.
Axles of sash pulleys and pulley blocks, Meakin, 4164.
Axles of roller skates, Beaumont & Pilkington, 4196.
Mould boxes in brick machines, Beck, 4255.
Axles of coal tubs, Bainbridge, 4304.
Engine cylinders, valves, pistons, and glands, Holt, 4316.
Axles of skate rollers, Clark, 4330.
Various parts of rotary engines, Hodson, 4438.
Rollers of roller skates, Nunn & Tuddenham, 4473.
Bearing surfaces of gas scrubber shafts, Walker, 4477.
Wheels of mining trollies, Souheur, 4499.
Caloric engine plunger or piston, Bonnevillo (*Brown*), 4537.

**Oiling fibres.** *See* Fibres (oiling).

**Oil-pumps.** *See* Pumps.

**Oils (animal):**

Obtaining "Dippel's" or bone oil, Nicholas, 1116.
Obtaining fat and oil from fæces, Newton (*Sindermann*), 1216
Treating & refining tallow & fatty substances, Lavender, 1291.

**Oils (animal)—*cont.***

Rendering tallow, Cook & Hall, 1501.
Purifying Yorkshire grease and black and shoddy oil, Hopkinson, 1667.
Using gases evolved in rendering tallow, Lake (*Turner*), 2046.
Magnetising fats, Darlow & Fairfax, 2102.
Extracting & recovering, from yarns, fabrics, &c., Sykes, 2926.
Obtaining oily products from sewage, Slater, 3668.
Obtaining grease in cleansing wool, Ford, 4168.

**Oils (mineral):**

Apparatus for distilling, Dudgeon, 33.
Storing, transporting, and drawing, Sinibaldi (*Sinibaldi*), 136.
Obtaining hydrocarbon oil, Nicholas, 1116.
Drawing petroleum and other, Woods, 1492.
Regulating production of, Birrell, 2604.
Combining silica with, for burning, &c., Grüne, 2891.
Solidifying petroleum, Morgan-Brown (*Goldsmith*), 2922.
Distilling, Dudgeon, 3037.
Recovering volatile hydrocarbons from gases, Young, 3137.
Treating gases in obtaining, from coal, shale, &c., Young, 3137.
Retort for the distillation of oil shales, Lyttle, 3579.
Storing, carrying, and drawing off, Howes, 3583.
Retorts and fittings for distilling, Bennie, 3934.
Mixing with infusoric silicis for storing, &c., Grune, 4030.
Deodorising and purifying, Johnson & Johnson, 4255.
Obtaining light hydro-carbons from, Bresson, 4296.
Protecting oil and spirit vessels, Ryland, 4368.

**Oils (vegetable):**

Obtaining fatty products from fruits, seeds, &c., Manbré, 579.
Preparing, for mixing with varnishes and gums, Zingler, 1276.
Essential oil from spent tan, Murdoch (*Honnaij*), 1397.
Making wrappers for oil-cake presses, Eskrett, 1498.
Protecting and securing envelopes in presses, Bacon, 1683.
Preventing oil flowing over in presses, Bacon, 1683.
From maize, Clark (*Chiozza*), 2007.
Refining cotton seed and other, Briggs, 2197.
Expressing, from seeds by rolling pressure, Odling, 2477.
Distilling, Dudgeon, 3037.
Treating for making varnish, &c., Spence (*Lefèbvre & Co.*), 3164.
Drying oil, Monckton, 3307.
Die-boxes of oil or seed-cake presses, Thompson, 3654.
Treating crushed oleaginous seeds, King (*Lawther*), 4043.
Protecting vessels for containing and removing, Ryland, 4368.

**Oleates:**

Producing, of tin and alumina, Sieber (*Gonin*), 3064.

**Oleine:**

Residue in treating and refining tallow, &c., Lavender, 1291.

**Omnibuses.** *See* Carriages.

**Omnibuses (fare registers for).** *See* Registering.

**Opening bottles.** *See* Bottles.

**Opening cotton, &c.** *See* Spinning (batting).

**Optical illusions and effects (producing):**

Pictorial, panoramic, and scenic effects, &c., Phillips, 2393.
Roller and rope apparatus for use in, Pichler & Gardner, 4496.

**Optical instruments; lenses; prisms:**

Prism for spectroscopes, &c., Beck (*Queen & Co.*), 669.
Mounting photographic lenses, Morgan-Brown (*Hermagis*), 937.
Brackets or "orderlies" for suspending, Madden, 944.
Kaleidoscopes, Cowper, 1331.
Combining telescopes with sticks, staves, &c., Hosking, 1379.
Tempering optical glasses, Royer de la Bastie, 2157.
Compound for spectacle frames, Thayer (*Smith*), 2513.
Dissolving view lime-light gas apparatus, Hughes, 2683.
Kaleidoscope with rotating object holder, Williams, 2993.
Exhibiting photographs, objects, &c. at night, Bacon, 3480.
Annealing glass for making lenses for, Monckton, 3307.
Arranging telescope glasses, Delcarte, 3576.
Combining magnifying lens with other instruments (The "mensor"), Henderson, 4363.
Combining a Nicol prism with other instruments (The "mensor"), Henderson, 4393.
Glass reflectors & lenses for telescopes, heliscopes, & cameras, Bessemer, 4552.

**Orderlies or brackets.** *See* Brackets.

**Ordnance.** *See* Fire-arms.

**Ores.** *See* Grinding. Smelting. Washing, &c.

**Organs.** *See* Musical instruments.

## Ornamenting and decorating:

Tinned plates &c., Jensen (*Hamburg-American Sewing-Machine Co.*), 26.
Coffins and coffin furniture, Kendrick, 31.
Lattice framework for decoration, Rideal, 113.
Producing ornamental inscribed plates, Mallet, 144.
Backs of toilet looking-glasses and mirrors, Lewis, 237.
Sewing-machine stands, Clements, 367.
Flexible or elastic casts for ornaments, Loewenberg, 420.
Composition for making black & colored ornaments, Cole, 495.
Backs and handles of brushes, Pearson, 516.
Glass surfaces with letters and other devices, Kelly, 521.
Surfaces and producing ornamental designs, Boggett, 526.
Gasaliers, chandeliers, candelabra, &c., Atkins & Torr, 594.
Metallic bedsteads and cots, Atkins, 666.
Copper plates for use in ornamenting surfaces, Brown, 714.
Wood, ivory, stone, &c., Notton, 743.
Applying cements to ornamental edging, Ross, 850.
Covers of books and similar articles, Deighton, 888.
Coffin plates, Humpage, 917.
Transferring designs to walls, &c., Vaughan (*Maynard*), 1003.
Producing etchings and designs on glass, Skinner, 1030.
Books, paper or cards, Ritchie, 1034.
Panels of hearses and biers, Hatchard & Talbot, 1095.
Decorating tin plates, Barclay & Fry (*Baber*), 1168.
Funereal carriages or hearses, Dottridge, 1183.
Bordering cards, paper, and envelopes, Parkins, 1214.
Transferring devices and designs on to glass, Holyoake, 1255.
Woven fabrics, Lomnitz & Duxbury, 1267.
Preserving flowers, leaves, &c. for, Fenton, 1334.
Slate slabs for pavements or flooring, Elwes, 1386.
Applying metals to fabrics, Bennett, 1426.
Combining glass, &c. for, various objects, D'Humy, 1710.
Or decorating glass, Aubriot, 1797.
Ladies' skirts, cloaks, and wrappers, Lamprell, 1873.
Cornice pole and other rings, Taylor, 1921.
Transfer process for glass, earthenware, &c., Holyoake, 1941.
Buildings, tiles, tesseræ, and bricks, Hyatt, 2015.
Ornamental objects of soluble gun cotton, &c., Greening, 2044.
Fabrics, Newton (*D'Argence & Delamare*), 2161.
Metallic articles with looking-glass, Burton, 2206.
Ladies' skirts or costumes, Rodger, 2214.
Decorating articles in pottery, Brock, 2282.
Buildings, walls, tiles, bricks, &c., Hyatt, 2359.
Backs of toilet looking-glasses, Nicholson & Scovell, 2432.
Muslin like fabrics, Sylvester & Bridgett, 2671.
Articles of dress and other articles, Cadman, 2580.
Ornaments for fire-stoves, Cadman, 2580.
Printing or decorating metal plates, Thacker, 2642.
Grocers' fittings or canisters, Ludlow, 2750.
Wood, ivory, stone, &c., Notton, 2791.
Trimmings for dresses, furniture, curtains, &c., Page, 2814.
Leather, textile fabrics, &c., Searle & Cook, 2886.
Producing imitation figured surfaces, Loewenberg, 3050.
Ornamental trimming, McPherson, 3108.
Handles of umbrellas, walking sticks, &c., Clissold, 3181.
Metallic sheets by lithography, &c., Guéneux & Normand, 3185.
Wood, bone, ivory, and other hard substances, Clissold, 3190.
Forming ornamental illuminating gratings, Hyatt, 3357.
Surfaces of wood, Thornton & Thallon, 3632.
Forming ice on moulds for temporary, Gamgee, 3682.
China, wood, iron, paper, and fabrics, Paget, 3773.
Compound or "caoutchouc-aluta" for ornaments, Jenks, 3862.
Leather & skins, & plates for same, Bonneville (*Charton*), 3956.
Exteriors of buildings, Lipscombe, 4055.
Bricks, buildings, rafters, tiles, and floors, Hyatt, 4063.
Glaze for ornamenting surfaces, Baggeley, 4087.
Fancy wood-work and papier-mâché work, Brown, 4094.
Picture and other frames, Dodman, 4099.

## Orreries. *See* Astronomical instruments.

## Osier and other rods (peeling). *See* Baskets.

## Ovens; kilns:

For converting carbonate into caustic lime, Mackay, 91.
For heating and cooling slag castings, Luckenbach, 243.
Cylindro-conical lime and cement kilns, Hall, 346.
Gas-ovens for cooking and baking, Peacock & Rudkin, 590.
Gas-ovens for stoving articles, &c., Peacock & Rudkin, 590.
Bakers' ovens and heating same, Jensen (*Dührkop*), 904.
For firing bricks, tiles, pottery, and ceramic ware, Malpas, 1064.
Continuous kiln for burning limestone; saving fuel in same, Malpas, 1064.
For coking or destructive distillation, Nicholas, 1116.
Furnaces for heating lime kilns, Lockey, 1159.
Brick kilns and heating same, Haseltine (*Bingham*), 1182.
For carbonising and drying peat, &c., Hall & Bainbridge, 1460.
Grates for fire-places of lime kilns, Newton (*Carré*), 1634.
Muffle, for heating glass articles, Siemens, 1637.
For use in distilling sulphur, &c., Ross, 1807.
Utilising waste heat from brick kilns, Corbett, 1920.
Portable, for baking bread, meat, &c., Bonneville (*Lesobre*), 1937.
For drying germinated grain, Kunkler, 1971.

## Ovens; kilns—*cont.*

Constructing and working brick and other kilns, Bull, 1977.
For drying, baking, calcining, distilling, &c., Wood, 2078.
For roasting sulphurous minerals, Bousfield (*French Copper Co.*), 2084.
Calcining lime by waste heat from gas retorts, Cleland, 2097.
Heating, by air-gas and petroleum, Walker (*De Bergue*), 2108.
Wire hurdle floors for malt kilns, Wise (*Herrmann*), 2128.
For tempering glass articles, Royer de la Bastie, 2157.
Heating brick, tile, cement, lime, &c. kilns, Batchelar, 2200.
Using air-heating furnace pipes for heating, Clark, 2474.
Utilising heat from lime and other, Brierley, 2900.
Tile for floors of malt and other kilns, Woods, 2942.
For annealing malleable cast iron articles, Tenwick, 3000.
Heating annealing ovens, Ratcliff & Ratcliff, 3155.
For heating, annealing, and manipulating metals, Smyth, 3353.
For burning bricks and other articles, Hall, 3365.
For tempering and forming saws, &c. Lake (*Simonds*), 3528.
An "automatic dutch oven," Lake (*Dejey*), 3530.
Lime and cement kilns, Thompson & Ladelle, 3535.
Lime and cement kilns; cars for same, Mumford, 3645.
Utilising, &c. waste heat in and heating, Maw, 3699.
Drying and raising temperature of air & gases in, Maw, 3699.
For carbonising and distilling, Johnson (*Huyard*), 3759.
Generating gas in & for heating cooking ovens, Jackson, 3841.
Kiln or tower for annealing glass, Cannington & Shaw, 3904.
Heating, of close cooking ranges, Dobbie & Forbes, 3917.
Heating malt and other drying kilns, Wright & Saul, 4029.
Barrow for charcoal burners, Johnson (*Philippe*), 4157.
Preventing waste of fuel, &c. in lime and other, Finlay, 4196.
For burning gypsum for cement, Thomlinson & Salkeld, 4223.
Heating, by combustion of oil, Walker (*De Bergue*), 4241.
Continuous kilns for burning bricks, &c., Cowell, 4403.
Continuous kilns for tiles, pipes, bricks, cement, &c., Stone, 4451.

## Overalls. *See* Wearing-apparel.

## Oxen (controlling). *See* Harness.

## Oxidation, corrosion, and incrustation (preventing):

In steam-boilers, Scott (*Gerard*), 38.
In steam-boilers, Mason, 245.
In steam-boilers, Allibon & others, 264.
In steam-boilers, Rydill, 399.
Of pickled iron plates and molten tin, Terrell, 519.
In steam-boilers, Hall & others, 536.
In fuel economizers, water-heaters, and gauges, Bailey, 539.
Preventing accumulation of mud, &c. in boilers, Hunter, 1061.
In steam-boilers, Walker (*Paucksch*), 1099.
On the face of boiler fire-box tubes, Ward, 1133.
In steam-boilers, Felice, 1343.
Corrosion of ships' bottoms, &c., Thomson, 1373.
Corrosion of ships' bottoms, Denniston, 1466.
In steam-boilers, kettles, &c., Ludolph, 1776.
Powder for removing, Ludolph, 1776.
Carbon compound or "nicolline" for, Nicoll, 1953.
In steam-boilers, Morgan-Brown (*Crompton*), 1967.
In steam-boilers, Collet, 2002.
Cleaning tubes of scale, Howard & Sutherland, 2304.
In steam-engine boilers, Packman, 2574.
Corrosion of ships' bottoms, Johnson (*Heyl*), 2972.
Composition for coating iron wire, Kenyon, 3016.
Anti-fouling insulating adhesive compound, Thomson & Connolly, 3128.
Corrosion of ships' bottoms, metals, &c., Gaine & others, 3312.
Coating metals to prevent, Clark (*Delarouzée*), 3486.
Preparation for removing oxide from metals, Hayhoe, 3614.
Metallic alloys for iron surfaces, Lake (*Holden*), 3755.
In steam-boilers, Cottew, 3805.
Fouling of ships' bottoms, Betteley, 3997.
Oxidation of gold, silver, and other metals, Roncon, 4064.
Anti-fouling compound for ships' bottoms, &c., Martin, 4064.
In steam-boilers, Major, 4354.

## Oxides:

Furnaces for melting down, Willans, 157.
Precipitating oxide of iron, Box & others, 181.
Converting sulphides of alkaline metals to, Lyttle, 657.
Producing, of sodium, potassium, and barium, Lyttle, 657.
Absorbing metallic, Johnson (*Huet & Geyler*), 681.
Machine for getting oxide of zinc out of air, Braun, 1278.
Consolidating ferruginous, Spencer, 1368.
Magnetic oxide of iron, Darlow & Fairfax, 2102.
Obtaining oxide of zinc, Rylands & Swindells, 2298.
Recovering oxide of copper, Wolff & Byrom, 2482.
Substitute for oxide of zinc, Griffiths & Thompson (*Gaspari*), 2581.
Obtaining oxide of lead, Fitz-Gerald, 2481.
Precipitating sesqui-oxide of iron as, Heinzerling, 2869.
Obtaining oxides of iron for producing paint, &c., Baum, 2957.
Recovering black oxide of manganese, Dow & Teller, 3028.
Obtaining black oxide of manganese, Dow & Teller, 3128.
Preparing zinc oxide from "flux skimmings," Jones, 3296.
Retort or "hollow wall" for deoxidating, Lyttle, 3579.

**Oxygen:**
Decomposing water to obtain, Vera, 175.
Supplying, to filtered sewage water, Rydill, 399.
Obtaining, by dynamo-chemical means, Clark (*Lontin*), 473.
Regulator for use in producing, Birrell, 2604.
Making, for explosive gas-engines, Ellerbeck & Syers, 4326.

**Oxy-hydrogen or lime lights:**
Oxygen and hydrogen apparatus for producing, Birrell, 2604.
Dissolving view lime-light gas apparatus, Hughes, 2683.

**Oysters:**
Breeding and cultivating, De Legillardaie, 3506.

**Ozone:**
Producing and purifying, Lake (*Bartlett*), 3294.

## P.

**Packing; packing cases:**
Bale band fastener, Alexander (*Benwell & Humphreys*), 196.
Preserving wrappers from decay, Clark (*Rogé & others*), 268.
Fastening for securing ends of metal bale bands, Lind, 457.
Baling stable manure in cities, Ackerman, 502.
Handles for parcel straps, Evans, 552.
Hops, Tebbs, 692.
Plates for securing lids to boxes used for, Fullerton, 971.
Packages, &c. for holding butter, Edwards (*Sheldon*), 1106.
Crate for holding and transporting bottles, Wilson, 1329.
Cases for bottles and jars, Paris & Adam, 1346.
Chemical compounds for sale, &c., Hyatt, 1451.
Card for putting up thread, braid, &c., Haseltine (*Sutro*), 1479.
Boxes for forwarding watches, &c., Chevallier, 1520.
Water-proof paper and cloths or fabrics for, Clayton, 1547.
Material for covering or, articles, Turner & Stoneham, 1673.
Material for lining packing cases, Turner & Stoneham, 1673.
Covers or wrappers, Smieton, 1731.
Press with double fly-wheels for, Leproust & Clair, 1861.
Powder for packing and preserving food and fruit, Wilks, 1972.
Water-proof bags envelopes, &c. for, Newton (*Roqua*), 2075.
Merchandise in air-tight receptacles, Wise (*Dary*), 2139.
Fruit, flowers, &c. for transport, Wise (*Dary*), 2139.
Meat, game, and poultry for transport, Campbell, 2220.
Charging packages with grain, &c ,Simon (*Zimmermann*),2329.
Horizontal hydraulic press for baling cotton, Wilson, 2436.
Glass, &c., jars for packing food, De la Perrelle (*Guérin*),2437.
Bundling lengths of wood, Rowley, 2645.
Portable band or tie, Hodgetts, 2807.
Fabric for, from silk noil and gum, Hebblethwaite, 2857.
Fixing, &c. articles in cases for transport, Turner, 3222.
Buckle & lever for fastening bale bands, Lake (*Seymour*), 3318.
Refrigerators for use in packing-houses, Allegretti, 3377.
Meats, &c. in moulds of tin foil, Thompson, 3528.
Hydraulic machinery for use in, Fenby, 3584.
Carcases of animals on board ship, Knott, 3595.
Bale-ties, Murphy, 3596.
Paper-lined cloth for making wrappers, Smieton, 3684.
Fresh meat, game, fish, &c., Jensen (*Achtelstetter & von Sa-*[*wiczewsky*), 3729.
Compressed meat in cans, Newton (*Webb & others*), 3947.
Folding packing cases or crates, Blake & others, 4014.
Meats, &c. in jars, Thompson (*Leuchtenrath*), 4098.
Combining tarpaulin and brown paper for, McLaine, 4109.
Filling pockets with seeds, &c. for sale, Henderson, 4187.
Fabric for, from silk noil, &c. and gum, Hebblethwaite, 4305.
Meat-pulp, Imray (*Armengaud*), 4366.

**Packing; packing pistons, stuffing-boxes, &c.:**
Compound material or, of asbestos and india-rubber, Fish, 9.
Lubricating, for axle-boxes, North (*Tomlinson*), 130.
Pistons of engines, pumps, and valves, Perkins, 224.
Parts ofsteam-boiler furnaces, Lake (*Farris*), 310.
Stuffing-boxes of air-break apparatus, &c., Steel, 333
Joints of pipes or tubes, Atherton, 396.
Elastic, for couplings for broken shafts, Turner, 426.
Rock drill engine cylinders, &c., Haseltine (*Winchester &* [*Phelps*), 485.
Stuffing-boxes and pistons generally, Steel, 623.
Cylinders of hydraulic cranes, Walker & Pflaum, 719.
Wire, for pistons, pump buckets, rams, &c., Keirby, 737.
Lubricating, for stuffing-boxes, Newton (*Murfey*), 1025.
Rotary steam-engine pistons, Haseltine (*Lidgerwood*), 1066.
Pistons of liquid meters, Jennings & Pocock, 1599.
Molten metal, for steam, air or gas engines, Trossin, 1700.
Steam, water, and other sluice & slide valves, Mallinson, 1750.
Spring, for pistons and valves, Prior, 1809.
For pistons, Clark (*Giffard*), 1889.

**Packing; packing pistons, &c.—*cont.***
Substitute for, in cocks, valve boxes,&c.,Brookes(*Farjon*),1994.
Cold producing machines, Clark (*Giffard*), 2064.
For lubricating machinery, Smith, 2078.
Rotary engine and pump pistons, Simmons, 2105.
Metallic, for pistons, Clark (*Agnellet & Rothmeyer*), 2122.
Pistons of rock drills, Reynolds, 2287.
Rotary engine piston cylinders, Wimshurst, 2453.
Rods of air-break cylinders, Steel, 2721.
Pistons and slide-valves, Beattie, 2833.
Sluice and slide-valves, Mallinson, 2986.
Compound, for hot or cold water valves, Hornsby, 3013.
Metallic packing for stuffing-boxes, Bridgett, 3028.
Air-engine cylinders and pistons, Tongue (*Rider*), 3404.
Dry sliding gas fittings, Lakin, 3490.
Pistons of compressed air distributors, Lake (*Mekarski*), 3498.
Condenser tubes, &c., Johnson (*Normand*), 3516.
Metallic, for piston and other rods, Newton (*Constant*), 3630.
Flanges of evaporating pans, Maw, 3699.
Pump pistons, Cleminson, 3849.
Metallic, for stuffing-boxes, Brown (*Bailly*), 4329.
Pistons of vacuum pumps, Fryer & Alliott, 4395.
Caloric engine plunger or piston, Bonneville (*Brown*), 4537.

**Paddles and rabbles.** *See* Smelting.

**Paddle-wheels.** *See* Propelling ships.

**Padlocks.** *See* Locks.

**Pads or bosom forms.** *See* Dresses.

**Pads (veterinary).** *See* Medical treatment animals.

**Pails.** *See* Buckets.

**Paint-brushes.** *See* Brushes.

**Painters' easels.** *See* Easels.

**Paintings (exhibiting).** *See* Pictures.

**Paintings (mural fresco):**
Producing, in pottery, Brock, 2282.

**Paints; painting; colouring; whitewashing:**
Drying white lead, Bramham, 869.
Stereochromic mixture for, Wirth (*Kreittmayr*), 959.
Applying oil paints to surfaces, Vaughan (*Maynard*), 1003.
Outside protection for house painters, Kennedy, 1176.
Grinding paint in oil and white lead, Butler, 1177.
Impalpable black from spent tan, Murdoch (*Honnaij*), 1397.
Grinding, crushing, &c. by centrifugal force, Lucop, 1429.
White lead, Brumleu, 1437.
Coloring paper in process of making, Salt, 1573.
Imitating grain of wood in decorative painting, Fournier, 1580.
Aniline black for making colors, Clark (*Grawitz*), 1620.
White sulphite of lead, Scoffern & Atcherley, 2284.
Tubes for holding oil, and moist water colors, Holyoake, 2322.
Substitute for lead carbonate and barium sulphate, Griffiths [& Thompson (*Guion*), 2402.
Substitute for sulphate of baryta, Griffiths & Thompson [(*Guion*), 2460.
White pigments, Leger, 2731.
From certain iron ores found in Norfolk, Bunn, 2851.
Treating solutions of aniline colours for, Field, 2976.
Drying oil for painters, Monckton, 3307.
For coating materials and structures, Gaine & others, 3313.
Brush for whitewashing, Barker, 3329.
Outside protection for house painters, Kennedy, 3347.
Lowering apparatus for painters' use, Kennedy, 3347.
White lead, Lang, 3435.
Using electricity in making colors, Prosser, 3466.
Preparation for removing paint from wood, Hayhoe, 3614.
Using old paint when scraped off as first coat, Hayhoe, 3614.
Painting blind laths, hoop iron, &c., Heywood, 3660.
Painting, distempering & whitewashing machine, Paget, 3661.
Imitating grain of wood on panels, &c., Embley & Pilkington, [3670.
India-rubber tools and surfaces for painting, &c., Paget, 3773.
Tools for removing paint or color, Paget, 3773.
White lead, Milner, 4053.
Lowering apparatus for painters, Holthausen, 4481.
Mixing, Degener (*Weiler*), 4560.

**Panels; panelling:**
Treating peat, &c. for and making, Wilkinson, 60.
For carriages and such like, Block, 718.
Making, from millboard, Scoffern & Tidcombe, 827.
Transferring designs to, Vaughan (*Maynard*), 1003.
Combining glass, &c. for casing, D'Humy, 1710.
Setting gratings with ornamental tiles for, Hyatt, 2359.
Illuminating ornamental gratings for, Hyatt, 3357.
Ornamental grating work for panelling, Hyatt, 4063.
Panelling for cabinet furniture, Wilkinson, 4267.

**Panoramic effects (producing).** *See* Optical.

**Pans:**

Making seamless sheet metal, Thacker (*Martyn*), 3017.

**Pans (evaporating).** *See* Heating or evaporating.

**Paper (applying, ornamenting, and treating):**

To ornamenting coffins and coffin furniture, Kendrick, 31.
To making substitutes for wood, leather, &c., Gandy, 52.
To lamp and candle wicks, Aspinwall, 249.
Paper-stock for filtering, Outerson & Outerson, 558.
To duplex and other telegraphs, Taylor & Muirhead, 634.
In making bobbins, Freir & Fairlie, 773.
Slabs, tiles, and panels, Scoffern & Tidcombe, 827.
Water-proofing paper and millboard, Scoffern & Tidcombe, 827.
To transferring designs, &c., Vaughan (*Maynard*), 1003.
To boxes, Haseltine (*Cleveland Paper-box Machine Co.*), 1008.
To bearing and wearing surfaces, Newton (*Murfey*), 1025.
Holding, cutting, gilding, and burnishing, Ritchie, 1034.
Of pulp to boxes and hollow articles, Wheeler & Jerome, 1080.
To box making, Shaw (*Kettle*), 1166.
Making black and colored borders on, Parkins, 1214.
To making tubes, Lund & others, 1372.
Water-proof packing paper, Clayton, 1547.
Papier mâché for making moulds, Trier, 1659.
In making chair, &c. backs & seats, Weatherby (*Mason*), 1660.
In making packing material, Turner & Stoneham, 1673.
To bodies of railway wheels, Gandy, 1682.
To cloth for making covers, bags, moulds, &c., Smieton, 1731.
Mounting, on metal plates, Tucker, 1734.
To making washers, Ludolph, 1753.
In the construction of ships, boats, &c., Monckton, 1884.
For backing armour plates, Monckton, 1884.
To bed coverings and travelling rugs, Turner & Wilson, 2166.
To making cop and other tubes, Knott & others, 2331.
Pulp to composite railway wheels, Prestage, 2332.
To caster rollers, Browne (*Dreveile & others*), 2398.
Laying out paper for bordering with black, &c., Lyon, 2598.
Papier-mâché to mechanical torpedoes, McEvoy, 2786.
To making coffins, Larkman & Diprose, 2788.
In making ornamental trimmings, McPherson, 3108.
To binding wires of hat and bonnet shapes, Morand, 3234.
Preparing or medicating, for closet use, Austen, 3497.
Making bodies of railway wheels, Clark, 3519.
Water-proofing, Ralston, 3523.
To coverlets, chest warmers, and surgical belts, Loder, 3531.
To jackets, armlets, leggings, leg & foot warmers, Loder, 3531.
Socks, stockings, caps, bonnets, knee and elbow caps, Loder, [3531.
To making spools or reels, Baker, 3567.
To making cop and other tubes, Knott & Harrison, 3572.
To lining cloth for making wrappers, bags, &c., Smieton, 3684.
Painting papier-mâché goods, Paget, 3773.
As inlays to glass set in gratings, Hyatt, 4053.
Ornamenting papier-mâché work, Brown, 4094.
Of pulp to jacketing bottles, Fournereau, 4104.
In making packing material for goods, McLaine, 4109.
Water-proofing, Clamond, 4176.
For making vegetable parchment, &c., Lake (*Fell*), 4462.

**Paper (cutting).** *See* Cutting paper.

**Paper (making):**

Using "sludge" from paper and fibre mills for, Mackay, 91.
Substitutes for alum & china clay, used in, Mackay, 91.
Raising pulp in mills, Colebrook, 261.
Jacket stretcher, Redfern & others, 431.
Oven for stoving papier-mâché, Peacock & Rudkin, 590.
Cupro-ammonialised, & millboard, Scoffern & Tidcombe, 827.
Utilising cane trash for, Johnson (*Mignon & Rouart*), 973.
Treating wood, straw, and rags for pulp, Rocco, 1155.
Pulping, bleaching, pulp refining, &c. machines, Rocco, 1155.
Bleaching paper-pulp, Wirth (*Van Baerle*), 1382.
Using spent tan for pulp, Murdoch (*Honnaij*), 1397.
Disintegrating straw, bamboo, &c. before boiling, Gray, 1412.
Treating jute, gunny, manilla, &c. for, Lake (*Dubuisson*), 1533.
Colored veneered & enamelled papers & paper cloth, Salt, 1573.
Forming "alumino-ferric," for use in, Spence & Spence, 1704.
Picking rags, &c. for use in, Latour, 1814.
Direct-acting pump for use in, Wallace, 1816.
Tubular screw-apparatus for use in processes, Walker, 1886.
Aluminous cakes for use in, Spence & Spence, 1961.
Using maize flour for sizing pulp, Clark (*Chiozza*), 2007.
Using cloth from carding-engine cards for, De Montoison, 2110.
Straining pulp without adding fresh water, Cooke, 2156.
Colouring, cleaning, polishing, and finishing, Cooke, 2156.
Scrapers, brushes, rollers, and beetles for use in, Cooke, 2156.
Treating jute with silicate of soda for, Haas, 2371.
Making millboard by rolling pressure, Odling, 2477.
Treating wood, grass, &c. for, Johnson (*Juron & Juron*), 2488.
Obtaining fibres from wood, rags, &c. for, Noad, 2493.
Bank note & other water marked paper, Clark (*Desnos*), 2510.
Automatic machinery for making sheets of, Hobday, 2637.

**Paper (making)—*cont.***

Using sugar-cane trash in, Johnson (*Mignon & Rouart*), 2667.
Two webs at one time and compound sheets, Ibbotson, 2663.
Compound web or paper of three sheets, Ibbotson, 2663.
Compound paper fabric, Ibbotson, 2663.
Reeling paper from paper machines, Bebbington, 2663.
Paste for bleaching pulp for, Clark (*Coinsin-Bordet*), 2913.
Inodorous furnaces for evaporating lyes in, Rabot, 2952.
Endless wires for use in, Rowcliffe, 3054.
Leatherized paper, Kellogg, 3139.
Using sugar-cane trash for, Allport (*Espout*), 3463.
Protective paper for cheques, bills, notes, &c., Ward, 3770.
Revolving knotter or strainer apparatus, Watson, 4271.
Filters for use in paper mills, Ramsay, 4420.
Waxing or "satining" tissue and other paper, Mullord, 4469.

**Paper-fasteners:**

For connecting edges of paper, Whiteman, 1129.
Studs or, Holmes, 1473.

**Paper-hangings:**

Machine for pasting, before hanging, Lake (*Bustis*), 183.
Hanging lines for drying, Lloyd & Scully, 236.
Patterns for making blocks for staining, Boggett, 526.
Cementing cloth and paper together for, Smieton, 1731.
Printing or producing devices for, Bartlett & Murray, 1746.
Block printing and stamping, Batho & Hanson, 2005.
Preparation for removing varnished and other, Hayhoe, 3614.
Printing, Hummerston, 4134.
Cutting and pasting apparatus, Youard, 4340.

**Papers or manuscripts (binding).** *See* Books.

**Paper-weights:**

Combined blotting pad, paper-weight, & writing case, Hender- [son (*Legrand*), 3[illegible].
Applying electric briquets to, Lake (*Van Tenac*), 4[illegible].

**Papier-mâché.** *See* Paper.

**Parachutes.** *See* Aërial-machines.

**Paraffin.** *See* Oils (mineral).

**Parasols.** *See* Umbrellas.

**Parchment:**

Making vegetable, Lake (*Fell*), 4432.

**Parementine.** *See* Size.

**Parquetry work.** *See* Inlaying.

**Partitions.** *See* Walls.

**Paste-board.** *See* Paper.

**Pasting:**

Paper tubes for spinning machinery, Lund & others, 1372.
Paper for making cop-tubes, &c., Knott & others, 2331.
Boot and shoe gussets, Oldershaw, 2923.
Pasting paper-hangings or wall-papers, Youard, 4340.

**Patterngraphs.** *See* Patterns.

**Patterns; designs:**

For making blocks for staining paper, &c. Boggett, 526.
Enlarging and reducing designs & labels, Clark (*Gazérin*), 76[illegible].
Obtaining, for garments ("patterngraph"), Clark (*Stern & Conrad, & Co.*), 12[illegible].
Producing a duplicate of, Dadswell, 1571.
Or guides for embroidering ladies' skirts, Rodger, 2214.
Producing ornamental, by reflection, Phillips, 2383.
Embroidery, for sewing-machines, Hughes, 2466.
Cutting patterns for toothed wheels, Grube, 2507.
For metal moulding, Billington & Derbyshire, 2709.
Kaleidoscope for obtaining designs, Williams, 2808.
Setting out, for garments, Clark (*Roudel*), 3022.
Setting out toothed wheel patterns, Scott, 3294.
Producing, for sand-blast engraving, Gilbee (*Tilghman*), [illegible].
Producing, in embroidering, fret-cutting, &c., Howie, [illegible].

**Pattrasses.** *See* Gas-brackets.

**Paving; paving blocks.** *See* Road-making.

**Paving tiles.** *See* Tiles.

**Pears (pressing or squeezing).** *See* Presses.

**Peat; turf:**

Treating, for making paving blocks, fuel, &c., Wilkinson, [illegible].
System of drying, Perry, 153.
Using, in making steel, Clark (*Eyquem*), 256.
Using, for "asphaltic carpets," Gedge (*Gaudefroy*), 4[illegible].

**Peat; turf**—*cont.*
Using charred, in making a gas for heating, Kidd, 531.
Obtaining, and making blocks, Morgan-Brown (*Verdier*), 654.
Carbonising, to obtain products, Nicholas, 1116.
Rollers for cutting up masses of, Conradi (*Kesseler*), 1252.
Scraping apparatus for cutters, Conradi (*Kesseler*), 1252.
Making coke from, Conradi (*Kesseler*), 1301.
Preparing, moulding, and pressing, Kinsey, 1442.
Cutting, kneading, and condensing, Hall & Bainbridge, 1460.
Drying, carbonising, and reducing, Hall & Bainbridge, 1460.
Grinding, kneading, curing, &c. for fuel, Lake (*Dodge*), 1725.
Kneading, &c., Jensen (*Schlickeysen*), 2124.
Using, in making artificial iron ore, Johnson (*Cahen*), 2134.
Charring or coking, Lyttle, 2406.
Mounting turf cutters on mowing-machines, Green, 2447.
Using, in making honey-combed bricks, Chevallier, 2528.
Using, in artificial fuel blocks, Hes, 2573.
Using, for making gas, Aitken & Young, 2725.
Pug-mill for, Pollock, 3235.
Retort for distilling peat, Lyttle, 3579.
Applying, in making fire-lighters, Cole, 3580.
Using, in making manure, Spence, 3629.
Lawn trimming and sod-cutting machine, Lloyd, 3859.
Mixing charred, with nitro-glycerine, Punshon, 4268.

**Pedestals.** *See* Columns.

**Peeling osier and other rods.** *See* Baskets.

**Pegging machines (boot and shoe).** *See* Boots.

**Pemmican Leÿbold.** *See* Preserving food.

**Pencils; pencil-cases:**
Writing and drawing copying, Von Faber, 178.
Cases or holders for, Marler (*Reckendorfer*), 215.
For copying, &c. in lieu of ink, Flachfeld (*Hollerbusch*), 440.
Copying ink pencil, Vollmer (*Schulte*), 460.
Combining perpetual almanacks with cases, Howland, 524.
Copying ink pencils, Wirth (*Swänhausser*), 1236.
Telescopic pencil-cases, Cook, 1354.
Reservoir ink pencil or pen, George & Prioux, 2430.
Applying perpetual calendars to cases, Fisalthaler, 2868.
Polishing surfaces of, Wilson, 3094.

**Pendants (gas).** *See* Lamps.

**Pen-knives.** *See* Knives.

**Pens; pen-holders:**
Combining perpetual calendars with holders, Howland, 524.
Metallic boxes for holding, Myers, 570.
Telescopic cases or holders for, Cook, 1354.
Tools for cutting out, to prevent waste, &c., Nelson, 1990.
Reservoir ink pencil or pen, George & Prioux, 2430.
Reservoir pen-holders, Mackinnon, 2497.
Of steel, &c. for writing oriental languages, Fayad, 2608.
Applying calendars to pen-holders, Fisalthaler, 2868.
Polishing surfaces of pen-holders, Wilson, 3094.
Autographic perforating pen or stylus; working same, Edison, [3762.
Fountain pen-holders; ink retainers Williams, 3812.
Fountain pen; regulating flow of ink, Saunders, 4355.

**Perambulators; invalid wheeled chairs:**
Breaks for, Staniland, 134.
Tension wheels for, Shaw, 546.
Handles for back and front of, Robinson & Kendall, 1728.
Pedomotive wheeled horse or perambulator, Ibbotson, 1818.
Protective hood or covering for, Henderson (*Boivin*), 3362.
Safety breaks for, Ingrey, 3592.

**Percolators.** *See* Filters.

**Percussion caps.** *See* Caps.

**Perdifumes.** *See* Lamps.

**Perforating paper.** *See* Punching paper.

**Perfumes.** *See* Scents.

**Permanent way.** *See* Railways. Tramways.

**Perry.** *See* Beverages.

**Petroleum.** *See* Oils (mineral).

**Petroleum engines.** *See* Air and gas engines.

**Petticoats.** *See* Dresses.

**Pewter (resonant).** *See* Metallic alloys.

**Phoric acid.** *See* Acids.

**Phosphate of alumina.** *See* Alumina.

**Phosphate of magnesia.** *See* Magnesia.

**Phosphates (alkaline).** *See* Alkalies.

**Phosphates (metallic).** *See* Metallic salts.

**Phosphates of lime.** *See* Lime.

**Phosphorus:**
Employing phosphate of ammonia in making, Box & others, 181.
Obtaining, from phosphate of alumina, Townsend, 1862.

**Photography; photographs:**
Stand for exhibiting photographs, Bishop (*Knip*), 403.
Combination photographs and enlargements, Tilley, 635.
Backgrounds, Tilley, 635.
Apparatus ("micromegas"), Morgan-Brown (*Hermagis*), 937.
Cameras and tripods, Morgan-Brown (*Hermagis*), 937.
Mounting lenses, Morgan-Brown (*Hermagis*), 937.
White printing plates, Morgan-Brown (*Hedden & Hill*), 966.
Photographic studio windows or glass houses, Weyde, 1266.
Gelatine plates, &c. for printing with dyes, Edwards, 1362.
Producing polychromatic negatives for printing, Johnson [(*Société Publications Periodiques*), 1663.
Changing box and dark slide for use in, Hare, 1609.
Mounting photographs on metal plates, Tucker, 1734.
Adjustable head rests for photographers, Johnson, 1777.
Camera and apparatus for open air, Malfroy (*David*), 1791.
Frame for printing tinted borders, &c., Clark (*Lambert*), 1825.
Photometers; cutting sensitized paper, Clark (*Lambert*), 1825.
Printing frame for use in, Sabunjie, 1863.
Producing plates for embossing metal sheets, Dillon, 2613.
Double negatives for photoplastographs, Hughes (*Hommel*), [3059.
Boxes for photographs in book form, Van Dyk, 3212.
Sky and side lights for studios, Slingsby, 3352.
Producing gelatine printing plates, Haddan (*Edwards*), 3453.
Exhibiting photographic views, &c. at night, Bacon, 3460.
Press for burnishing or polishing, Taylor, 3815.
Process ("photo-chromo") for colouring, Armanino, 4247.
Apparatus for displaying, &c. photographs, Browne, 4299.
Cases for photographs, Quin, 4403.

**Photometers or photo-phlogometers:**
For use in photography, Clark (*Lambert*), 1825.
Different forms of pocket, Morgan-Brown (*Shuette*), 1865.
For indicating lighting power of gas, Bablon, 1872.
Indicating illuminating power of gas, Sugg, 3334.
For testing power of a gas-light, &c., ("radiometer") Crookes, [3860.

**Photo-thermo-collectors (armillary):**
For collecting rays of light and heat, Clark (*Balestrieri*), 89.

**Pianofortes.** *See* Musical instruments.

**Piano-harp cabinet organs.** *See* Musical.

**Pickers for looms.** *See* Weaving (pickers).

**Picking oakum.** *See* Ropes.

**Pickling iron plates.** *See* Coating metals.

**Picks; pickaxes:**
Shafting picks, Brown, 863.
Forming eyes upon pickaxes, Chapman, 1823.

**Pictorial effects (producing).** *See* Optical.

**Pictures; picture frames:**
Treating peat, &c. for and making frames, Wilkinson, 60.
Frames for exhibiting paintings and drawings, Rideal, 113.
Exhibiting drawings, tracings, &c., Furrell (*Browne*), 241.
Composition for making frames, Cole, 495.
Ornamenting pictures and their frames, Boggett, 526.
Enlarging and reducing prints, Clark (*Guerin*), 707.
Forming architectural, and frames, D'Humy, 1710.
Frames for, of wood, covered with metal, Larard, 3031.
Illuminating apparatus for shewing pictures, Bacon, 3460.
Ornamental framework for picture frames, Dodman, 4099.
Cases for, Quin, 4403.

**Piers:**
Sinking cylinders for foundations of, Munn & others, 419.
Sinking foundations for, Woodford & Woodford, 1531.
Constructing, to save material and weight, Prestage, 2160.
Forming foundations for, on sand, Cooke & Thompson, 2196.
Sinking cylinders for foundations of, Munn, 2743.

**Piers or landing stages.** *See* Platforms.

**Pig-copper.** *See* Smelting.

**Pig-iron.** *See* Smelting.

Pigments. *See* Paints.

Pile-fabrics (cutting). *See* Cutting pile-fabrics.

Pile-fabrics (weaving). *See* Weaving (carpets).

Piles:

Preserving, by "nicolline," Nicoll, 1983.
Hollow, for forming breakwaters, &c., Cooke & Thompson, 2196.
Moulds for casting hollow piles, Fisher, 3883.
Explosive gas-engine for driving, Ellerbeck & Syers, 4326.

Piles or batteries. *See* Electricity (generating).

Piling cloths and soft goods:

Adjustable racks for warehouses, Brown, 836.

Pillar letter-boxes. *See* Letter-boxes.

Pillars. *See* Columns.

Pillows. *See* Upholstery.

Pincers; pliers:

Pincers for attaching buttons, Bousfield (*Heaton*), 18.
For fixing buttons and fasteners, Feldman, 88.
For attaching buttons to gloves, boots, &c., Marsden, 985.
Combination implement, Elliott (*Converse*), 1773.
Pincers for setting buttons, Bousfield (*Heaton*), 3686.

Pins:

Hair-pins, with better holding qualities, Hill, 2667.
Boxes or cases for holding, Jensen (*Kœnig*), 3563.

Pins or bolts. *See* Bolts.

Pipe and cigar-lights. *See* Matches.

Pipe-probes. *See* Tobacco.

Pipes; tubes; tubing:

Material for packing pipe joints, Fish, 9.
Moulding drain, in Portland cement, Stringfellow, 25.
Coupling tubes of railway break apparatus, Clark, 80.
System of fire mains for ships, &c., Chatwood, 155.
Portable apparatus for drilling flanges of, Enoch, 190.
Bending up strips into skelps for, Taunton & others, 208.
Forming skelps and welding same into tubes, Johnson, 209.
For railway carriage heating apparatus, Scott (*Haag*), 236.
Metallic joint for steam heating, Scott (*Haag*), 236.
Utilising slag for sewer and drain, Luckenbach, 243.
Reamers for enlarging bore, &c. of, Mills (*Siprell*), 246.
Welding, Hunt (*Flagler*), 290.
Fitting, to tube plates or holders, Johnson (*Constant*), 301.
Disconnecting tubes from plates, Johnson (*Constant*), 301.
Securing and uncoiling hose pipes, Coales, 334.
Wrench for connecting hose couplings, Coales, 334.
Joints or couplings for uniting, Atherton, 396.
Preventing water freezing in, Chameroy, 417.
Couplings for repairing broken, Turner, 426.
Connecting, to bottoms and sides of ships, Spence, 427.
Flexible, Boucley, 461.
Arranging "service pipes" in ships, Roberts, 585.
Repairing service mains under pressure, Bates, 660.
Attaching cocks, &c. to and plugging mains, Bates, 660.
Tools for use in attaching taps, &c., to service, Bates, 660.
Moulding socketted pipes from clay, &c., Robinson, 795.
Tapering ends of soft metal for joining, Humphries, 838.
Cements for and making spouts and air and water, Ross, 850.
Lathes for forming internal screw threads in, Low, 993.
Conducting, for respiratory apparatus, Abel (*Fayol*), 998.
Utilising slag as a non-conductor for covering, Dähne, 1052.
Screwing tubes, Heap, 1137.
Tube expanders for fixing tubes in boilers, &c., Lyall, 1164.
For steam-boilers, Buret de Longagne, 1316.
Making tubes of paper, linen, &c., Lund & others, 1372.
Making skelps for tubes direct from furnaces, Allen, 1562.
Non-conducting composition for steam, Leadbetter, 1685.
Expander for boiler tubes, Lake (*Pagan & others*), 1709.
Forming moulds for casting, Hutchison, 1783.
Tube plugs and scraper for marine boilers, Allan, 1846.
Moulding earthenware socket, Doulton, 1847.
Connecting meters to mains under pressure, Tylor, 1857.
Pressure and vacuum couplings for, Bolitho, 1931.
Hollow tube stoppers for boilers, Jordan, 1943.
Screw-threading; tapping pipe fittings, Gee (*Allin*), 1973.
Moulds for and casting, Tongue (*Zegut*), 1978.
Various methods of joining, Brookes (*Farjon*), 1994.
Joining and fixing cocks, valves, &c. to, Brookes (*Farjon*), 1994.
Weaving, strengthening, and lining hose, Smith & Smith, 2035.
Joints of, where india-rubber is used, Murdoch (*Hoyois*), 2095.
Blocks and cores for making, Newton (*Brooks*), 2150.

Pipes; tubes; tubing—*cont.*

Weaving & water-proofing hose, Morgan-Brown (*Dodge*), 2200.
Welding iron and steel, Howard & Sutherland, 2204.
Clearing off scale during rolling, Howard & Sutherland, 2204.
Making tubes of paper & other material, Knott & others, 2251.
Dressing or preparing leather for hose, Tombs, 2253.
Jacket or covering for steam, Mewburn (*Gay*), 2300.
Plugs for tubes of refrigerators, Severn, 2436.
Expander for boiler tubes, Carlyon & Titterton, 2464.
For metal casting apparatus, Haseltine (*Grasser*), 2467.
Air-heating, for furnaces, Clark, 2474.
Dies for making wrought iron water spouting, Pritchard, 2504.
Testing pneumatic signal tubes, Canning & Joel, 2518.
Testing & localising leaks in gas & other, Canning & Joel, 2518.
Instrument for gauging internal diameter of, Allport, 2535.
Facing the flanges of, Smith, 2557.
Forming metal tubes, Smith & Woodrow, 2561.
Nozzle piece or "director" for hose and, Tweeddale, 2587.
Rolling metal, Imray (*Hahn*), 2684.
For steam-boilers, Renshaw (*Renshaw*), 2698.
Cutting die threads for, Imray (*Boyd*), 2737.
Scraper for cleaning fire-tubes of boilers, Mayston, 2745.
Drawing and welding large metal tubes, Kesterton, 2765.
Moulds or cores for casting, Toussaint, 2840.
Flexible gas hose and small tubing, Sugg, 2842.
Bending, flanging, &c. Galloway, Galloway & Beckwith, 2881.
Flexible mandrels for bending metal, Richards (*Orum*), 2896.
Mould cores for casting, Toussaint, 2937.
Device for welding, Lake (*Pittsburgh Chain, &c. Co.*), 2973.
System of making moulds for moulding, McNish, 3006.
Pressing and moulding clay pipes, Duncan, 3034.
Vent clearer for, of wash basins, &c., Clark (*Hawley*), 3063.
Applying silicious saline, &c. in making, Williams, 3127.
Laying and joining pipes and tubes for tunnels, water and gas [pipes, pneumatic tubes, &c., Williams, 3128.
Securing joints of steam and water, Messrs. Turner, 3287.
Strainers for rigid or flexible, Dunstan, 3273.
Composition for & making drain & other, Tebbutt & Wade, 3363.
Rolling and forming skelps for, Brownhill & Smith, 3368.
Joining, to each other and curved or flat plates, Bourry, 3411.
Rolling, straightening, and finishing, Butler & Butler, 3471.
Plugs or stoppers for, Arrowsmith & Ferguson, 3477.
Locking flanges and fastenings for water-supply, &c., Newton, [3542.
Moulds for making clay, Hamblet & Davies, 3556.
Forming welded and open jointed, Brownhill & Smith, 3577.
Tenacious vulcanite for piping, MacLellan, 3578.
Sealed supply tubes for inflammable oil cans, Howes, 3583.
Utilising heat from conduits, mains, &c., Maw, 3699.
Scrapers for cleaning fuel economiser tubes, Twibill, 3722.
Combining, for water supplying, ventilating, &c., Clark (*Morrell*), 3739.
Forming bent or curved soft metal, Edwards (*Mitchell*), 3764.
Moulding and cutting clay, Murray, 3768.
Bush for fitting boiler tubes, Walker (*Estienne*), 3810.
Couplings for fire hose or other, Macartney, 3833.
Rolling open jointed and other, Brownhill & Smith, 3853.
Tube stoppers for steam-boilers, Mace & Brewster, 3871.
Moulds for casting large pipes, Fisher, 3883.
Welding, flanching, and shaping Galloway & other, Plant, 3904.
Hose coupling; attaching same, Morgan-Brown (*Morse*), 3994.
Shaping ends of strips for, Brownhill & Brownhill, 3913.
For centre of retorts used in distilling, Bennie, 3934.
Facing sockets for tubing, Whitley, 3942.
Drawing and rolling metal strips, Deeley, 3945.
Jet apparatus for cleaning boiler, Benson (*Crosby & McCaleb*, [4002.
Casting flanged, Roberts, 4278.
Cramps for securing together flanges of, Ehrhardt, 4374.
Moulding pipes, elbows, or bends, Harlow, 4402.
Duplex or compound tubes for boilers, Wright, 4419.
Kilns for burning pipes; heating same, Stone, 4451.
Tube stopper for steam-boilers, Clark (*Walker*), 4535.
Casting rain-water and other pipes, Morrison, 4581.

Pipes for smoking. *See* Tobacco.

Pistols and small-arms. *See* Fire-arms.

Pistons:

Material for packing stuffing-boxes of piston-rods, Fish, 9.
Arranging, of double-acting gas-motors, Abel (*Deimler*), 71.
Hollow, for hot-gas and steam-engines, Boulton, 96.
For steam and other engines and pumps, Perkins, 224.
Packing glands around piston rods, Perkins, 224.
For rotary engines and pumps, Cory, 286.
For air-break apparatus, &c., Steel, 333.
For steam-engines, Stevenson, 387.
For rotary steam-engines and pumps, Schrebler, 477.
Rock-drill and steam-hammer, Haseltine (*Winchester & [Phelps*), 493.
For air-break and other cylinders, & packing same, Steel, 533.
Wire packing for piston rods and, Keirby, 737.
For pneumatic engines, &c.; adjusting rods of same, C-- [lingridge, 34[illegible]

Pistons—*cont.*
Arranging, &c. in radial rotating engines, Taylor, 892.
For superheated steam-engines, Dixwell, 1012.
Packing engine, by steam, Haseltine (*Lidgerwood*), 1086.
Jack for removing rods from ("Propeller jack"), Reed, 1092.
For air compressing apparatus, West, 1401.
Arranging valves inside steam-engine, Clough, 1417.
Packing liquid meter, Jennings & Pocock, 1599.
For steam, air or gas-engines, and packing same, Trossin, 1700.
Spring packing and anti-galvanic lubricant for, Prior, 1809.
Turning rotary engine, Johnson (*Lämmerhirt*), 1867.
Packings for, Clark (*Giffard*), 1889.
Lubricant for, Gedge (*Honoré*), 1923.
Composition for lubricating steam-engine, Wilkins, 2012.
Rock drill engine, Edwards, 2013.
Reciprocating, for engines, Bruce & Antisell, 2016.
Rods to prevent grinding of glands, &c., Schönheyder, 2031.
For compressing and expanding air, Clark (*Giffard*), 2064.
Double, for steam-engines, Hughes, 2103.
Rotary engine and pump; packing same, Simmons, 2105.
Metallic packings for, Clark (*Agnellet & Rothmeyer*), 2122.
Combining two, in one engine cylinder, Lake (*Hlubek*), 2181.
For rivetting machines, Lake (*Allen*), 2182.
Cushioning, of steam and air engines, Pickering, 2247.
Packing and cushioning rock drill, Reynolds, 2287.
Forming ports in piston rods of steam-engine, Parker, 2372.
Packing rotary engine cylinder, Wimshurst, 2453.
T shaped, for engines and pumps, Higginson, 2463.
Cushioning, of direct-acting steam pumps, King, 2492.
Connecting, in engines, Messenger & Churchward, 2666.
Forming and packing steam, Beattie, 2838.
Heat non-conductor for heads of steam-engine, Dixwell, 2934.
For hydraulic gun carriage brakes, Longsdon (*Krupp*), 3134.
For steam, water, and hot-air engines, Lake (*Foster*), 3143.
For direct-acting portable cranes, Abel (*Hahn*), 3151.
Caloric engine, Stenberg, 3159.
Cushioning gas-motor engine, Crossley & Crossley, 3221.
Rotary engine and pump, Brae, 3276.
Packing air-engine, Tongue (*Rider*), 3404.
Packing, of air distributors, Lake (*Mekarski*), 3498.
Cushioning steam pumping engine, Benson (*Cope & Maxwell*), [3598.
Metallic packing for rods of, Newton (*Constant*), 3630.
Rotary steam-engine; oiling and mounting same, Moore, 3803.
Packing pump, Cleminson, 3849.
Lubricating, of air and gas pumps, Eaglesham & Rigg, 3969.
Cushioning, of steam-engines, Cherry, 3984.
For direct-acting steam pumping engines, Cherry, 3984.
For air compressors & pumps, Bousfield (*Leprince & Co.*), 4272.
For compressed air-engines & lubricating engine, Holt 4316.
Metallic packing for, Brown (*Bailly*), 4329.
Cushioning, of steam tram-cars, Millar, 4370.
Rolling pistons, & same with solid rods, Brown & Beard, 4449.
Oiling and packing caloric engine, Bonneville (*Brown*), 4537.

Pitch chains. *See* Chains.

Pits or shafts (sinking). *See* Mining.

Pivots:
Lubricant for, Gedge (*Honoré*), 1923.

Placards. *See* Advertising.

Plaiting or folding. *See* Goffering.

Planetariums or orreries. *See* Astronomical.

Planing. *See* Cutting.

Plans:
Mounting, on zinc, iron, and other plates, Tucker, 1734.

Planting or sowing seed. *See* Sowing.

Plants; trees:
Using hop-bine in forming walls, floors, roofs, &c., Pope, 159.
Walls for training fruit trees, Ross, 850.
Supplying moisture, &c. to hop and other, George, 1104.
Preserving flowers, leaves, &c. of, Fenton, 1334.
Device for holding and applying fertilisers, &c., Wheeler, 1592.
Powder for destroying, &c. insects on, Snelling, 1844.
Insect destroyer and fertiliser, Morgan-Brown (*Davis*), 2056.
Brushing hooks or sickles for cutting hedges, Morton, 2276.
Cutting or felling standing timber, Munro, 2289.
Applying mineralised water to roots of corn, &c., Hyatt, 2307.
Making "iron wheat," Hyatt, 2307.
Distilling marine, Dufrené (*Glaisot frères*), 2815.
Brushes for destroying vermin on, Barker, 3329.
Using eucalyptus and pangué for tanning, &c., Masurier, 3634.
Treating epilobium hirsutum for spinning, &c., Péaud, 3760.
Portable steam saw for felling trees, Ransome, 3823.

Plants (hoeing and thinning root). . *See* Tilling.

Plaster:
Grinding, crushing, &c. by centrifugal force, Lucop, 1429.
For fire-proofing buildings, Hyatt, 2015.
Compound or material for walls, Baggeley, 4067.

Plate-powder boxes. *See* Boxes.

Plates. *See* Dishes.

Plates for printing. *See* Printing.

Plates (inscription and numerical). *See* Sign.

Platforms; landing-stages:
Movable, for use in transferring grain, &c., Goodwin, 559.
Suspending artillery, in equipoise, Chomel, 659.
Forming surfaces of, Haseltine (*Keene & Sawyer*), 700.
Applying cements to and constructing, Ross, 850.
Using pontoons as landing piers, Hodgson & Sweet, 1478.
Raising &c. landing stages and other lifting, Duckham, 2491.

Plating metals. *See* Coating metals.

Playing cards. *See* Cards.

Pleating attachments. *See* Sewing.

Pleating or folding. *See* Goffering.

Pliers. *See* Pincers.

Ploughs, ploughing. *See* Tilling.

Ploughs or excavators. *See* Excavating.

Plugs or stoppers for tubes. *See* Pipes.

Plumbago:
Grinding, crushing, &c. by centrifugal force, Lucop, 1429.
Vacuum process for collecting particles of, Hyatt, 2307.
Utilising graphite from gas retorts, Aitken & Young, 2725.

Plumbers' traps. *See* Traps.

Plummer-blocks. *See* Bearings.

Plummets. *See* Mathematical instruments.

Pneumatic motive-power. *See* Air-engines.

Pneumatic-breaks. *See* Breaks for railways.

Pneumatic-hammers. *See* Hammers.

Pneumatic-looms. *See* Weaving.

Pneumatic-machines. *See* Boring. Wells, &c.

Pneumatic-signals. *See* Signals.

Pneumatic-telegraphs. *See* Telegraphs.

Pocket-books. *See* Books.

Pointers:
Sliding, and handles for same for pocket use, Devenport, 463.

Points and switches (railway). *See* Railways.

Pole-axes. *See* Slaughtering.

Poles and posts. *See* Posts.

Poles for carriages. *See* Carriages.

Polishing, grinding, or surfacing. *See* Grinding.

Polishing grain and seeds. *See* Grain and seeds.

Polishing liquids; powders:
Powder for polishing metallic substances, Wilkinson, 60.
Varnishes for polishers, Mackay, 200.

Polishing threads and yarns. *See* Finishing.

Polling stations or booths. *See* Voting.

Pomades. *See* Hair-dressing.

Pontoons:
For raising vessels out of water, Clark & Standfield, 514.
Shoring vessels upon, Clark & Standfield, 514.
Or floating docks, Koning, 1413.
For throwing bridges, landing guns, &c., Hodgson & Sweet, 1478.
Using, as a long boat or pinnace, Hodgson & Sweet, 1478.
For raising sunken vessels, Hodgson & Sweet, 1478.

Pontoons—*cont.*

For landing piers and ice sledge, Hodgson & Sweet, 1478.
Apparatus to be employed as a pontoon, Pike, 1465.
Using wheels of floating vehicles as. Thellusson, 2066.
Constructing, of oblong caissons, Brown, 2249.
For use in raising sunken vessels, Parlour, 3445.

Porcelain. *See* Earthenware.

Portable railways. *See* Railways.

Portfolios. *See* Books.

Port-lights. *See* Ship-building.

Portmanteaus; trunks:

Buckle locks for fastening straps of, Walton, 299.
Handles for, Evans, 552.
Artificial leather or cloth for, Block, 718.
Handles for trunks, Butler, 1060.
Dressing or preparing leather for trunks, Tombs, 2553.
Life-saving trunk for seamen and others, Gade, 2498.
Leather covered handles for, Myring, 4097.
Securing, against thieves, Gedge (*Pérard*), 4214.

Portmonnaies. *See* Purses.

Postage stamps. *See* Stamps.

Posters. *See* Advertising.

Posts; poles:

For "post and rail" railways, &c., Haddan, 1198.
For steam excavators, Mills (*Chapman & Souther*), 1688.
Preserving telegraph posts by "nicolline," Nicoll, 1953.
Preserving telegraph, Gedge (*Richard*), 2144.
Metal earth plates for fixing telegraph, Oppenheimer, 2240.
Boring and cutting holes in fence, McGillivray, 2246.
Casting flanged telegraph, Roberts, 4278.

Potash. *See* Alkalies.

Potato-diggers. *See* Tilling.

Potato-drills. *See* Sowing.

Potatoes (separating and riddling). *See* Sifting.

Pots and jars. *See* Jars.

Pottery. *See* Earthenware.

Pouches (tobacco). *See* Tobacco.

Poultry food. *See* Food for animals.

Poultry houses and coops. *See* Houses.

Powder-boxes (tooth, plate, &c.) *See* Boxes.

Powdering or grinding. *See* Grinding.

Power looms. *See* Weaving.

Power-indicators (steam). *See* Steam-engines.

Precipitating metals. *See* Smelting.

Preserves. *See* Preserving food.

Preserving and preparing food:

Drying articles of food, Perry, 152.
Animal and vegetable substances, Lake (*McClintock*), 207.
Instrument for masticating food, Imray (*Tournier*), 212.
Or cooling meat, fish, &c., Weatherby, 351.
Combined egg-beater, freezer, &c., Benson (*Redhoffer*), 388.
Embedding raw or cooked meat, &c. in cement, Francis, 652.
Cutting, &c. bones for use in making soup, Bradford, 727.
Mincing and mixing fish, flesh, &c., Milburn & Jackson, 933.
Packages, &c. for holding butter, Edwards (*Sheldon*), 1106.
Compressing, &c. farinaceous foods, Barker, 1154.
Producing alimentary substances, Tongue (*Gannal*), 1170.
System of "pralinage" for, Tongue (*Gannal*), 1170.
Oven for preparing preserves, Bonneville (*Lesobre*), 1937.
Deodorising and absorbing powder for, Wilks, 1972.
Paste for macaroni and vermicelli, Clark (*Chiozza*), 2007.
Magnetic jellies and farinas, Darlow & Fairfax, 2102.
Magnetic foods and condiments, Darlow & Fairfax, 2102.
Extracting essence of meats, Wire & Gard, 2125.
Fresh fruit, &c. during transport, Wise (*Dary*), 2139.
And packing meat, game, &c. for transport, Campbell, 2220.
Making "dust food" from bran, &c., Hyatt, 2307.
Aromatising food bases with medicinal aromas, Hyatt, 2307.
Drying fish, flesh, beans, cherries, &c., Hyatt, 2307.
Tubes for temporarily holding mustard, Holycake, 2322.
Tubes for holding salad dressing, jellies, &c., Holycake, 2322.

Preserving and preparing food—*cont.*

Biscuits, meat, vegetables, &c. combined, Nicoll, 2348.
Concentrated food for soldiers, Nicoll, 2348.
Toughened glass vessels for, De la Perrelle (*Guérin*), 2437.
Decorticating cereals for soup products, Sézille, 2471.
Animal & vegetable substances by salicylic acid, Dixon, 2[illegible]
Refrigerator & process for producing cold air for, Foster, 2[illegible]
Milk, meat, poultry, fruit, &c., Gibbons & Allison, 2712.
Fruit, vegetables, eggs, &c. by paraffin, Loomis, 2744.
Receptacle for marmalade for table use, Green, 2896.
Animal and vegetable substances, Ermatinger (*Sacc*), 3073.
Game, fish, fowl, butter, and cream, Ermatinger (*Sacc*), 3073.
Bread for travellers, soldiers, &c., Tamet (*Mouries*), 3081.
Substitute for raisins from wine-making refuse, Hely, 3[illegible]
Meat, poultry, game, fish, &c., Brewer (*Aubert*), 3129.
Refrigerator for perishable articles, Allegretti, 3377.
Drying fruit, vegetables, &c., Oakes (*Reynolds*), 3443.
Preserving meats, &c. in a portable form, Thompson, 3[illegible]
Mincing meat, Barr, 3581.
Carcases of animals on board ship, Knott, 3595.
Fresh meat, game, fish, &c; packing same, Jensen (*Achtel-stetter & von Sawiczewsky*), 3729.
Beating, churning or mixing apparatus, Morier, 3834.
Dietetic macaroni, vermicelli, granules, &c, Morfit, 3[illegible]
Process for preserving meats, Newton (*Webb & others*), 3947.
Fruit preserves or "solid jams," Moss, 3967.
Compounding calves feet jelly tablets, Rees, 4073.
Cooking & packing meats, &c., Thompson (*Leuchtenrath*), 4[illegible]
Cutting oranges for marmalade, Kent, 4222.
Slicing cucumbers, cutting vegetables, &c., Kent, 4222.
Preserving meat or "Pemmican Leybold," Pryor (*Leybold*), 4[illegible].
Treating meat for preservation, Imray (*Armengaud*), 4[illegible]
Producing "meat-bread," &c. Imray (*Armengaud*), 4[illegible]
Implement for opening provision cans, &c., Helwig & Cox, 4463.
Tins, boxes, and cases for preserved meats, &c., Groom, 4[illegible]

Preserving cables, ropes, cord & twine. *See* Ropes.

Preserving fermented liquors. *See* Brewing.

Preserving fibres. *See* Fibres.

Preserving flowers, leaves, &c. *See* Plants.

Preserving from damp and mildew:

Fabrics exposed to air & moisture, Clark (*Rogé & others*), [illegible]
Fabric for ("asphaltic carpet"), Gedge (*Gendefroy*), [illegible]
Damp resisting strong rooms, magazines, &c., Chambers, [illegible]
Size for preventing mildew in cotton, &c., Lansdale, 1[illegible]

Preserving metals:

Inner surface of steam-boiler plates, Felice, 1343.
Wholly or partially submerged surfaces, Thomson, 1573.
Carbon compound or "nicolline" for, Nicoll, 1953.
Submerged surfaces from decay, Thomson & Connolly, 3[illegible]

Preserving thread. *See* Threads.

Preserving wood. *See* Wood.

Preserving woven fabrics. *See* Fabrics.

Presses; pressing; compressing:

For squeezing grapes, apples, beet, &c., Vaughan (*Blot*), [illegible]
Hydraulic engine for driving hydraulic, Casson, 1[illegible]
Diminishing friction in screw, Olpherts, 5[illegible]
For compressing yarn before warping and weaving, Cox, [illegible]
Compressing hops into cases or bags, Tebbs, [illegible]
Wire packing for rams of hydraulic, Keirby, 7[illegible]
Accumulators for hydraulic, Mesdach, 7[illegible]
Making cranks by bending under pressure, Clarke, 8[illegible]
Compressing farinaceous foods, Barker, 1154.
Compressing peat, Conradi (*Kesseler*), 1262.
Compressing tobacco by mechanical means, Irvine, 1[illegible]
Pressing cigar bunches in moulds, Bear, 1425.
Pressing artificial fuel, peat, clay, &c., Kinsey, 1442.
Compressing chemical compounds for sale, &c., Hyatt, 1451.
Compressing yarn in cops, &c. for sewing-machines, Cox, 1[illegible]
Compound corks, &c., Tongue (*Montaugé & Brandely*), 1477.
Pressing or moulding bricks, &c., Durand & Marais, 1534.
Hydraulic, for flanging, &c. boiler plates, Brown, 1667.
Pressing glass and glass articles, Siemens, 1637.
Compressing blocks of asphalte, clay, &c., Randolph, 1[illegible]
Hydraulic oil pressing machinery, Bacon, 1683.
For compressing bricks, tiles, &c., Craven, 1732.
Valve-gear and accumulators for hydraulic, Clark (*Rochow & Matthiessen*), 1[illegible]
Operating dies in forming eyes upon tools, Chapman, 1[illegible]
For stuffing stools and packing, Leproust & Clair, 1861.
Clay, &c. for tiles (tile-press), Jensen (*Schlichegrom*), 2124.
Compressing gunpowder, Murdoch (*Müller*), 2125.
Bending railway rails, Abel (*Reishauer & Bizantzhli*), 2172.
Compressing substances reduced to dust, Hyatt, 2307.
Fashioning hooks, &c. of springs, Holmes (*Porter*), 2311.
Pressing and indenting wire for card teeth, Haley, 2312.

**Presses; pressing; compressing—*cont.***

Portable roller damper and copying, Wrigley, 2397.
Horizontal hydraulic, for baling cotton, Wilson, 2436.
Pressing and moulding bricks, Messrs. Ward, 2455.
Feed attachment for power presses, Hughes (*Deming*), 2462.
Screw, for use in making moulds, Haseltine (*Grasser*), 2467.
Making slabs or cakes from pulp, seed, &c., Odling, 2477.
For making sugar bars, &c., Bousfield (*Kohrig & Psillas*), 2486.
Hydraulic, for raising, &c. landing-stages, &c., Duckham, 2491.
Tanning by hydraulic pressure, Clavier & Deschamps, 2583.
Compressing and rolling tobacco, Butterworth, 2628.
Screw, for pressing bricks, &c., Titley, 2658.
For bending plates in making tubes, Kesterton, 2765.
Hydraulic, for punching tube and rivet holes in boiler plates, [Galloway & Beckwith, 2881.
Fashioning crossing rails by pressure, Williams, 2933.
Pressing sugar into blocks, Clark (*Gandolfo & Jarboe*), 3060.
Pressing & moulding bricks, tiles, & clay pipes, Duncan, 3034.
Utilising back stroke of pumps used with, Bayford, 3071.
Metal scrap compressing machine, Holmes (*Atwood*), 3211.
Compressing moulded bricks and tiles, Pollock, 3235.
Compressed liquid engine for working hydraulic, Brin, 3274.
For squeezing, shingling, shaping, &c. metals, Smyth, 3353.
Compressing bricks, tiles, &c. to avoid cracks, Clayton, 3389.
Bending iron and chain harrow links, Denton, 3438.
Hydraulic machinery for pressing goods, Fenby, 3584.
For making composition buttons, Hess (*Hess*), 3613.
Inlaying woods by pressure, Thornton & Thallon, 3632.
Forming seamless compressed traps, Lake (*Du Bois*), 3646.
Die-boxes of oil or seed-cake and other, Thompson, 3654.
Fashioning claws, &c. of blade springs, Holmes (*Porter*), 3781.
Hydraulic, for extracting magma, &c., Hollings, 3809.
For burnishing or polishing photographs, &c., Taylor, 3815.
Pressing strip ends for pipes, Brownhill & Brownhill, 3913.
Compressing meat, Newton (*Webb & others*), 3947.
Pressing articles in pottery, tiles, &c., Boulton, 3980.
Filter presses with intersecting surfaces, Bowing, 3989.
Pressing bricks, artificial fuel, &c., Brownhill, 4015.
Hydraulic, for casting plumbers' traps, Lake (*Du Bois*), 4026.
Pressing or shaping nut blanks, Clark (*Marland*), 4139.
Pressing bricks and other forms, Emmet, 4141.
Casting steel ingots under pressure, Copeland, 4144.
Moulding or pressing bricks, tiles, &c., Craven & Craven, 4191.
For moulding glass, Perry & Perry, 4193.
Bricks, Beck, 4253.
For pressing fabrics; heating same, Pedder, 4421.
Pressing bricks and tiles, Brewer (*Machin*), 4464.
Combined hydraulic press and steam-hammer, Tough, 4496.
For copying & like purposes, Lake (*Oakley & Quarrill*), 4514.
Screw letter-copying press, Barton, 4547.

**Presses for printing.** *See* Printing paper.

**Pressing & finishing woven fabrics.** *See* Finishing.

**Pressing down coal.** *See* Mining.

**Pressure-gauges.** *See* Gauges.

**Printing artificial flowers, &c.** *See* Flowers.

**Printing earthenware and china:**

Copper plates for ornamenting or, Brown, 714.
Elastic type and apparatus for, Holyoake, 1255.
Process and ink for, Holyoake, 1941.
India-rubber tools and surfaces for, Paget, 3773.

**Printing lozenges, &c.** *See* Confectionery.

**Printing metal plates:**

And ornamenting tinned plates, &c., Jensen (*Hamburg-American Sewing-Machine Co.*), 26.
Copper plates for ornamenting or, Brown, 714.
By set-off from printed sheets, Barclay & Fry (*Baber*), 1168.
Obtaining register in, by transfer, Barclay & Fry (*Baber*), 1168.
Elastic type and apparatus for, Holyoake, 1255.
By set-off from printed sheets, Barclay, 2590.
Fixing colored impressions on plates, Barclay, 2590.
Or decorating tin or other plates, Thacker, 2612.
Forming colored impressions on sheets by lithography, &c., [Guéneux & Normand, 3185.
Designs, trade marks, &c. on sheets, Guéneux & Normand, 3185.
India-rubber tools and surfaces for, Paget, 3773.

**Printing or ornamenting glass.** *See* Glass.

**Printing or ornamenting leather.** *See* Leather.

**Printing or stamping biscuits.** *See* Bread.

**Printing paper; composing, &c. type; typo-writers:**

Distributing type automatically, Winder, 74.
Compositors' case frames, McPhail, 220.
Preventing "set-off" in book machines, &c., Bewsher, 339.
Automatic paper feed for table machines, Clinker, 513.
Cutting sheets in feeding same to machine, Clinker, 513.

**Printing paper; composing, &c.—*cont.***

Designs for making types for colour printing, Boggett, 526.
Grinding, &c. lithographic stones, Salmon & Crosland, 581.
Rotary press for flat printing, Casalonga (*Jouiot*), 591.
Lithographic and type printing machines, Thomson, 603.
Damping, cutting, and folding, MacDonald & Calverley, 611.
Copper plates for ornamenting or, Brown, 714.
Weight of goods in weighing machines, Chameroy, 828.
Feeding, &c. sheets, King (*Brandon*), 1001.
Both sides of paper simultaneously, Anthony & Taylor, 1127.
Turning apparatus, &c. for web machines, Anthony & Taylor, [1127.
Cylinders & forms for web machines, Anthony & Taylor, 1127.
Casting printers' leads, Wood, 1220.
Forming boxes in type cases, Shaw, 1231.
Forming quadrats of brass, Lindsay, 1238.
Forming metal plates for ornamental designs, Brown, 1275.
Forming plates for printing names, &c., Brown, 1275.
Damping rollers and wipers for lithographic, Woodcock, 1345.
Arranging fly cylinders for lithographic, Woodcock, 1345.
Illustrated papers, &c. from a continuous web, Ingram, 1353.
Inking "cuts" or engravings in web machines, Ingram, 1353.
Double feeding rocking cylinder presses, Woodcock, 1360.
From plates of gelatine, gum, &c. with dyes, Edwards, 1362.
In making paper tubes, Lund & others, 1372.
And numbering strips, &c. for cheques, &c., Beech, 1384.
Composing and justifying type, Hattersley, 1566.
Distributing and preparing type, Hattersley, 1566.
Platten machines for, Kritch & Greenwood, 1602.
Inking; mounting, &c. platten, Kritch & Greenwood, 1602.
Producing aniline black for use in, Clark (*Grawitz*), 1620.
Forming moulds for casting stereotype plates, Trier, 1659.
Taking-off apparatus, Roxby & Walker, 1684.
Type "writing ball" or apparatus for, Holten (*Hansen*), 1706.
Frames and type ("Patent Litho-type"), Bartlett & Murray, [1746.
Cheques, music, labels, stamps, &c., Bartlett & Murray, 1746.
Type composing and distributing apparatus, Fraser, 1812.
Flat rotary machine for newspapers, &c., Lane, 1875.
Making relief blocks to be used in, West, 2011.
Numbering coupons, bank notes, &c., Duncan (*Richards*), 2020.
Forming logotypes for numbering, Duncan (*Richards*), 2020.
Distributing and composing types, Chapman, 2073.
Using set-off of copying press as surface for, Fellows, 2137.
Type-writing, &c. machine, Morgan-Brown (*Harding & Johnson*), 2119.
Forming moulds for stereotype plates, Morgan-Brown (*Harding & Johnson*), 2119.
Backing electrotype shells, Lake (*Brooks*), 2168.
Facilitating delivery from cylinder, Messrs. Richard, 2195.
Casting stereotype plates, Haseltine (*Grasser*), 2467.
Type-setting machines, Bonneville (*Richards*), 2649.
Cutting and folding device, Newton (*Campbell*), 2679.
Presses for plate printing, Wilkinson, 2882.
Dispensing with preparatory damping in, Wilkinson, 2882.
Cleaning and polishing plates used in, Wilkinson, 2882.
Numbering tickets and like articles, Wilson, 2783.
Reeling and damping continuous paper, Bebbington, 2863.
Casting and composing types, Westcott, 2965.
Block printing & stamping wall papers, &c., Batho & Hanson, [3005.
Folding, cutting, and wetting paper, Anthony & Taylor, 3056.
Combined rotary and flat machine, Anthony & Taylor, 3056.
Oscillating flat printing machine, Anthony & Taylor, 3056.
Driving impression cylinders; covering type bed, Anthony & [Taylor, 3056.
Ink distributing; delivering sheets, Anthony & Taylor, 3056.
Cutting and folding apparatus, Conquest (*Tucker*), 3105.
Arranging cylinders of machines, Clark (*Marinoni*), 3240.
Sheet divider and distributor, Clark (*Marinoni*), 3240.
Machine for electro-typing, Alexander (*Burgin*), 3243.
Lithographing show-cards, tablets, &c., Manning, 3356.
Giving motion to drawing-off rollers and tapes, Newsum, 3401.
From plates of gelatine, &c. with dyes, Haddan (*Edwards*), [3453.
Locking pages in chases for, Tickle, 3403.
Cartridge cases, labels, &c., Powell & Dangerfield, 3533.
Preparation for cleaning type, Hayhoe, 3614.
Rotary press inking apparatus, Newton (*Campbell*), 3647.
Fixing zinc plates in lithographic presses, Borrett & Hyde, 3691.
Pneumatic feed apparatus, Dinsmore, 3707.
Producing perforated sheets for and apparatus for autographic, [Edison, 3762.
Type for perforating paper for type-writers, Edison, 3762.
Press for cards, &c., and separator for same, Redstone, 3982.
Constructing job presses, Lake (*Griffith & Byrne*), 4013.
Two newspapers at same time, &c.; damping paper, Farmer, [4052.
Wall papers, Hummerston, 4134.
Paring, damping, and re-reeling webs, Newton (*Hoe*), 4321.
Flat form cylinder presses, Newton (*Hoe*), 4386.
Actuating and governing mechanism, Newton (*Hoe*), 4386.
Inking and feeding mechanism, Newton (*Hoe*), 4386.
Pneumatic paper-feed, Newton (*Ashley & Ashley*), 4537.

**Printing photographs.** *See* Photography.

## Printing twine or cord. *See* Ropes.

## Printing wood:

Inks or colors for and method of, Whitburn, 605.
Copper plates for ornamenting or, Brown, 714.
Producing blocks for transfer, Embley & Pilkington, 3670.
India-rubber tools and surfaces for, Paget, 3773.

## Printing woven and other fabrics:

Preparing floor-cloths for, Nairn, 35.
Thickening agent in ("apparature"), Scott (*Gerard*), 38.
Preparing oxidised fatty acids for use in, Gatty, 124.
Steaming apparatus, Cordillot & Mather, 479.
With indigo and fixing same, Holliday (*Schultz*), 498.
Copper plates for ornamenting or, Brown, 714.
Coloured borders on "dhooties," Lomnitz & Duxbury, 1267.
Forming metal plates for ornamental designs, Brown, 1275.
Steaming apparatus, Smith, 1303.
From plates of gelatine, gum, &c. with dyes, Edwards, 1362.
Temples for use in machines for, Wolstencroft, 1408.
Swiss or blue chintzes, Bennett, 1428.
With aniline, &c. without usual mordants, Martius, 1584.
Fixing and developing colors in, Clark (*Thierry-Mieg*), 1587.
Producing alumina for making mordants, Prentice, 1758.
Tubular screw-apparatus for drying in, Walker, 1886.
Designs on ladies' skirts or costumes, Rodger, 2214.
Valves for steam drying cylinders used in, Fletcher, 2290.
Materials for, with aniline, Wolff & Byrom, 2422.
In imitation of India embroidery, Cadman, 2580.
Ageing and steaming apparatus, Jones, 2943.
Making mordants or oleates for, Sieber (*Gonin*), 3064.
Making and using emulsions, Sieber (*Gonin*), 3064.
Steaming or ageing, Knowles & Kay, 3328.
From plates of gelatine, &c. with dyes, Haddan (*Edwards*), [3453.
Elastic pressure cylinders, Johnson (*Le Tellier & Verstraet*), [3463.
Measuring tapes, Chesterman, 3715.
Producing mixed effects ("pulveribeige"), Godefroy, 3746.
India-rubber tools and surfaces for, Paget, 3773.
Floor-cloths and woven or felted fabrics, Hummerston, 4134.
Electro-coppering calico printers' rollers, Wilde, 4515.
Engraving calico printers' rollers, Lake (*Hope*), 4524.

## Printing-colours. *See* Dyes.

## Printing-telegraphs. *See* Telegraphs (electric).

## Prismatic compasses. *See* Compasses.

## Prisms. *See* Optical instruments.

## Prisons and jails. *See* Buildings.

## Projectiles for ordnance. *See* Shot.

## Propelling air and gases. *See* Air and gases.

## Propelling balloons. *See* Aërial-machines.

## Propelling carriages; locomotion on land:

Rotary cellular engine for, Boyman, 67.
Tramway or common road carriages, Todd, 355.
Pneumatic propelling apparatus for, Collingridge, 367.
Road or tramway cars by endless ropes, Hallidie, 1204.
Locomotives for tram-cars, Merryweather & others, 1513.
Tricycles and manupede carriages, Bodel & others, 1559.
By dogs or other animals, Henry (*Huret*), 1983.
Compressed air or gas engine for, Dann (*Guyot*), 2038.
Tram-cars, &c. by steam power, Blockmans & Charlet, 3004.
Motive-power for, by displacement, &c. of fluids, Colborne & [St. George, 3239.
Combining steam and air or gas engine for, Forteous & Bruce, [3264.
Motor-engine for tram-cars, Monckton & others, 3396.
Electro-magnetic engine for, Johnson (*Camacho*), 3416.
Bicycles by additional cranks and handles, Aves, 3485.
Heated compressed air-motor for, Lake (*Mekarski*), 3498.
Spring motor for, Lake (*Wenmaekers*), 3501.
Four-wheeled steam carriages, Touaillon (*Bollée*), 3511.
Treadle mechanism and gear for, Farries, 3552.
On steep inclines by gravitating power, Hunt, 3926.
Mechanical apparatus or horse, Browne (*Chaine*), 3983.
Locomotives for tram-cars, Hughes & Coltman, 4023.
Compressed air-engine for, Holt, 4316.
Bicycles both by hands and feet, Shaw, 4346.
Fireless steam-engine for, Fidler, 4377.
Tram-cars by compressed air, water, &c., Wernekinck, 4521.

## Propelling or driving machinery; transmitting [power or motion:

Hydro-pneumatic motor for, Fisher & Rutherford, 56.
Rotary cellular engine for, Boyman, 67.
Knitting machinery, Clark (*Reed & Mulligan*), 115.
Baskets of centrifugal machines, Britten & Barron, 118.

## Propelling or driving machinery, &c.—*cont.*

Spindles in spinning frames, &c., Wright & Pollard, 132.
Imparting motion and pressure, Nussey & Leachman, 139.
Sewing and similar machinery, Clements, 367.
Sewing-machines, Tatum & Roberts, 443.
Treadle-apparatus for light machinery, Clark (*Doers*), 544.
Wheel and wedge device for transmitting motion, Wright, 734.
Tin-plate rollers at varying speeds, Richards & others, 935.
Turning lathes, Low, 996.
Gravity motor for treadle-machines, Clark (*Capco*), 1067.
Screw or toothed worm gear, &c. for, Ittmann (*Coffin*), 1139.
Hydro-extractors, Broadbent, 1144.
Calendar rollers, &c. of carding-engines, Leigh & Leigh, 1271.
Converting rotary into rectilinear to and fro motion, Barlow [(*Deck*), 1277.
Reversing motion for washing machines, &c., Norris, 1313.
Converting reciprocatory into rotary motion, Brakell, 1388.
Transmitting motive-power, Goubet & Monrocq, 1569.
Spring clutch mechanism for, Goubet & Monrocq, 1569.
Ratchet mechanism for use in, Goubet & Monrocq, 1569.
Sewing-machine driving mechanism, Harrison & Mabson, 1573.
Converting fast into slow motion, Newton (*Babbitt*), 1676.
Folding treadles for sewing machines, Clements, 1715.
Friction gear for driving fan shafts, &c., McLachlan, 1761.
Simultaneously adjusting parts of machinery, Welch, 1775.
Driving hammers, sewing-machines, &c., Edwards, 2013.
Compressed air or gas engine for, Dann (*Guyot*), 2038.
Sewing and light machinery, Clark (*Hussey*), 2043.
Sewing-machines, &c., Nelson & Anderson (*Paine & Paine*), 2069.
Spindles of spinning, doubling, &c. machines, Holt, 2091.
Spindles of twisting frames by friction, Arrol, 2191.
Baskets of centrifugal machines by friction, Shears, 2192.
For fulling, milling, felting, and cleansing, Webster, 2256.
Driving winding doubling frames, Unsworth, 2341.
Disintegrators, Hirzel, 2468.
Friction clutch pulleys for, Clark (*Mason*), 2478.
Converting reciprocating into rotary motion, Dawes, 2494.
Working sewing and other light machines, West, 2511.
Working "oliver" hammers, Davies & others, 2526.
Working shears in cutting nails, Bates & Thornton, 2612.
Sewing-machines, coffee mills, &c., Lake (*Lane*), 2613.
Converting reciprocating into circular motion, Messenger & [Churchward, 2666.
Double clutch mechanism for, Whitaker, 2676.
Driving emery wheels, &c., Goldsworthy & Barlow, 2763.
Operating fans and other devices, Clark (*Moore*), 2904.
Auxiliary motive mechanism, Foster, 2912.
Actuating rotary washing machines and churns, Norris, 2940.
In cutting and folding paper, Conquest (*Tucker*), 3146.
Grain dressing drums and reversing same, Buchholz, 3167.
Converting motions, Comber, 3189.
Motive-power for light machinery, Colborne & St. George, 3239.
Obtaining direct circular motion, Bevan, 3271.
Converting reciprocal into rotary motion, Turnock, 3344.
Electro-magnetic engine for, Johnson (*Camacho*), 3416.
Tables or tools of slate-working machinery, De Winton, 3438.
Converting rotary into direct vertical or horizontal motion, [McMinn, 3457.
Driving double-acting force pumps, &c., McMinn, 3457.
Driving grain-dressing reels, Leicester & Blessard, 3518.
Actuating grindstones, saws, &c., Johnson (*Blake*), 3678.
Treadle action for sewing-machines, Steele & Cocks, 3733.
Friction clutches, Imray, 3816.
Fitting gearing for mechanical stirrers, Wilson, 3865.
Spring motor for light machinery, Lake (*Manson*), 3869.
Actuating pumps in mines from bank, Armstrong & others, 4069.
Sewing-machines, Clark (*Febvre & others*), 4147.
Apparatus for decolorising, &c. cane juice, True, 4165.
Friction boxes or clutches, Beck, 4253.
Transmitting motion from gas-engines, Alexander (*De Bo-* [*schop*), 4347.
Transmitting motive-power, Steele, 4359.
Driving vacuum and other pumps, Fryer & Alliott, 4388.
Driving gas scrubber mechanism, Walker, 4477.

## Propelling ships; locomotion on water:

Arranging deep and shallow propellers, Wilcke, 4.
Hydro-pneumatic motor for, Fisher & Rutherford, 56.
Rotary cellular engine for, Boyman, 67.
Coupling portions of, and repairing shafts, Varley, 276.
Couplings for repairing shafts, Varley, 303.
Working pumps for use in, Deverell & Tower (*Deverell*), 388.
Couplings for repairing broken shafts, Turner, 486.
Increasing pitch of propeller blades, Hirsch (*Hirsch*), 576.
Hollow screw blades, Browne (*Fletcher*), 578.
Casing for protecting propellers, Whettem & Walker, 657.
Increasing efficiency of propellers, Whettem & Walker, 657.
Working oars or sculls while facing the bow, Land, 708.
Pneumatic propelling apparatus for, Collingridge, 967.
Apparatus or "refouleur" for, Wise (*Bertot*), 989.
A screw propeller, Clark (*Porter*), 1042.
Jack for removing screw-propellers from shafts, Reed, 1096.
Vibrating angular discs for, Radford, 1147.
Duplex paddle with removable blades or arms, Deakin, 1332.
Arranging and placing duplex paddles, Deakin, 1332.
Combined motive-power engine and apparatus, Brakell, 1388.

**Propelling ships; locomotion on water—*cont.***

Narrow bladed paddle-wheels or propellers, Aston, 1512.
Combining and placing paddle-wheels, Aston, 1512.
Feathering paddles; working and adjusting same, Haseltine [(*Edson & Silliman*), 1677.
Boats facing the bow; propellers for same, Colwell, 1708.
With several hulls by sails and screws, Woolcott, 1775.
Air or steam jet apparatus for, Clark (*Worms de Romilly*), 1848.
By sculls, fins, and blades, Bonneville (*Unger*), 1854.
Arranging paddle-wheels and propellers for, Monckton, 1884.
By dogs or other animals, Henry (*Huret*), 1983.
Compressed air or gas engine for, Dann (*Guyot*), 2038.
Applying power of rower in rowing boats, Butt, 2083.
By steam and gases ejected below water line, Preiswerk, 2184.
Clamping towing ropes or hawsers on board ship, Davis, 2199.
Grapnel box propellers for boats, Jobert, 2400.
Paddle-wheels with safety floats for boats, Jobert, 2400.
Actuating feathering paddle floats, Wood & Farries, 2576.
Propellers with adjustable and feathering blades, Eyre, 2600.
Skimming or shallowed bottomed vessels, Novello, 2624.
Adapting steam-power to yachts when required, Lewin, 2735.
Raising yacht screws on deck when not in use, Lewin, 2735.
Floating bodies by water under pressure, McEvoy, 2786.
Scull propellers and operating same, Clark (*Moore*), 2804.
By wave action or hydro-propulsion, Deverell & Tower (*Deverell*), 2890.
Sailing vessels by steam, &c. when required, Elliot, 2909.
Using sailing boats and barges as steam launches, Elliot, 2909.
Narrow bladed propellers with reduced pitch, Spartali, 3180.
Motive-power for, by displacement, &c. of fluids, Colborne & [St. George, 3239.
Paddle-wheels with archimedean floats, Simpson, 3286.
That float above water, Henderson (*Picard & Laurent*), 3369.
Electro-magnetic engine for, Johnson (*Camacho*), 3416.
Spring motor for boats, Lake (*Wenmaekers*), 3501.
Treadle mechanism and gear for, Farries, 3552.
Screw-blades with added or raised ridges, Henderson, 3565.
Paddle-wheels with ridged floats, Henderson, 3565.
Arranging and driving screws ("screw clad"), Lumley, 3623.
By compressed air acting upon the water, Browne, 3673.
Hydraulic motor or steam pump for, Davies & Wilson, 3842.
Screw with moveable blades, Johnson (*Schiaffino*), 3873.
Rowing gear for oarsmen to face bow, Hughes (*Lyman*), 3897.
Screw propellers and arranging same, Betteley, 3907.
Arranging screws to act in tunnels, Griffiths, 4002.
Feathering paddle-wheels, Clark (*Forward*), 4160.
Propeller blades; securing same to boss, Hewitt, 4250.
By steam and gases ejected below water line, Preiswerk, 4324.
Motor and pump for, by re-action, Preiswerk, 4324.
Forms for screw-propeller blades, Hirsch, 4479.
Arrangement of wings on shaft for, Sanderson, 4523.
Hollow feathering paddle-wheel floats, Bingham, 4537.

**Protractors.** *See* Mathematical instruments.

**Puddling metals.** *See* Smelting.

**Pug-mills.** *See* Mixing.

**Pulleys; drums; sheaves:**

Chain drums for hydraulic cranes, Walker & Pflaum, 719.
Caster wheels applicable as, Edwards, (*Crist*), 748.
Sheaves for endless rope car traction, Hallidie, 1204.
For preventing cords, belts, &c. slipping, Roberts, 1229.
Preventing entanglement of cords, &c. upon, Roberts, 1229.
Turning cones and other, for flat bands, Illingworth, 1392.
For driving centrifugal pumps, Woodford & Woodford, 1531.
Fitting chain loosely on shafts, Goubet & Monrocq, 1560.
Grinding band and conoidal "scroll" drums, Handyside, 1702.
Shackle for ships' blocks, Ramsay (*Low*), 1956.
Antifriction bushes and sheaves for blocks, Bond, 2317.
Friction clutch pulleys, for lifts, &c., Clark (*Mason*), 2478.
Friction, for working hammers, Davies & others, 2586.
Friction and guide for revolving shutters, Woodburne, 2752.
Self and load sustaining differential, Gough & Altree, 3470.
Fastening and releasing mechanism for rack, Macvitie, 3676.
For preventing cords or belts slipping, &c., Roberts, 3723.
Rack pulleys for window-blinds, Thompson, 3996.
Drums for actuating pumps, &c., Armstrong & others, 4059.
Oiling axles of sash pulleys and pulley blocks, Meakin, 4164.

**Pulleys or ladders (draymen's).** *See* Ladders.

**Pulp for making paper.** *See* Paper.

**Pulping roots.** *See* Root-pulpers.

**Pulverising flocks, mungo, &c.** *See* Rags.

**Pulverising or comminuting.** *See* Grinding.

**Pumping air and gases.** *See* Air and gases.

**Pumps; raising, forcing, & pumping liquids:**

Compound material for packing stuffing-boxes of, Fish, 9.
Hydro-pneumatic motor for, Fisher & Rutherford, 56.

**Pumps; raising, forcing, &c. liquids—*cont.***

Force pumps for rotary cellular engines, Boyman, 67.
Compressing water for working railway breaks, Clark, 80.
Raising and forcing liquids by air pressure, &c., Rowland, 94.
Rotary and reciprocating, Higginson, 108.
Working hydraulic engines as force pumps, Casson, 123.
Double-acting ships' pumps, Chatwood, 155.
Bringing centrifugal, into action, Ekström, 219.
Doing away with foot valves in centrifugal, Ekström, 219.
Pistons for, Perkins, 224.
Raising water, oils, corrosive liquids, &c., Colebrook, 261.
Double-acting steam, for raising and forcing, Allen, 269.
Rotary, Cory, 286.
Working, on shipboard, Deverell & Tower (*Deverell*), 308.
Working, by hydraulic pressure, Davey, 323.
Regulating speed and pause of, Davey, 323.
Steam, for draining mines or quarries, Stevenson, 387.
Rotary machine for raising and forcing liquids, Johnson, 400.
Using steam expansively in direct-acting, Cameron, 429.
Steam suction and pressure, Schrebler, 477.
Rotary, without cams or eccentrics, Lee, 481.
Actuating underground pumps, Richardson & Ball, 564.
Steam pumping engine, King (*Westinghouse*), 569.
Bilge pumps and clearing obstructions in same, Sly, 691.
Packing double action plunger, Walker & Pflaum, 719.
Centrifugal, Reynolds, 724.
Wire packing for buckets of, Keirby, 737.
Regulating and controlling motion of, Defty, 760.
Centrifugal, Lawrence & Porter, 791.
Single and double acting, Clark (*Hartwick & Geyer*), 812.
Rotary, Cooke, 839.
Employing "refouleurs" for pumping, Wise (*Bertot*), 899.
Steam-jet apparatus for pumping liquids, Cook, 938.
Rotary, Cooke, 950.
Bunsen pump for, Morgan-Brown (*Hagemann*), 964.
Pumping water, &c.; working, in mines, Brotherhood, 999.
Cylinders for direct-acting, Flower, 1101.
Dispensing with valves in pump barrel & bucket, Booth, 1115.
For drawing different kinds of liquor, Booth, 1115.
Raising and forcing water by compressed air, Ingram, 1161.
Rotary, for pumping water, Radford, 1173.
New type of rotary, Barlow (*Deck*), 1277.
For use in making aërated liquids, Corry, 1318.
Combined water-power engine and pump, Brakell, 1393.
Engine for working deep well or other, Brakell, 1393.
Double-acting, and pumping engines, Willis & Pearson, 1491.
Raising water, &c. by forming vacuum, Budge (*Miralles*), 1494.
Combined engine and centrifugal, Lawrence & Porter, 1515.
Centrifugal, and driving same, Woodford & Woodford, 1531.
Rotary, Samain, 1542.
Steam-engine to act as a pump, Payton & Holmes, 1567.
Valve mechanism of direct-acting steam, Duncan, 1733.
Double-acting force, Munro, 1762.
Centrifugal, Jameson & Schaeffer (*Tegnander*), 1790.
Spring packing and coating same with copper for, Prior, 1809.
Hydraulic engines or, Clark (*Rochow & Matthiessen*), 1810.
Direct-acting, for mines, manufactories, &c., Wallace, 1816.
Jet apparatus as substitute, Clark (*Worms de Romilly*), 1848.
Rotary, Johnson (*Lämmerhirt*), 1867.
Steam, Blake (*Hall*), 2026.
Piston rods to prevent grinding of glands, &c., Schönheyder, 2051.
Rotary steam and rotary ships', Simmons, 2105.
Piston packing for, Clark (*Agnellet & Rothmeyer*), 2122.
Raising water by compressed air, Preiswerk, 2184.
Direct-acting steam, Pickering, 2247.
Various forms of valves for steam, Weatherhogg (*Taylor*), 2278.
Rotary helical, for raising and forcing, Boulton & Imray, 2320.
Constructing without foot-valve, Morgan-Brown (*Sherman & [Goldsmith*), 2345.
Combined steam-engine and pump, Higginson, 2463.
New type of pump, Higginson, 2463.
Direct-acting steam-pumps, King, 2492.
Double-acting rotary, Patrick, 2499.
Using grain elevators as, in case of leakage, &c., Mills, 2503.
Liquid ejectors or, for scent bottles, &c., Plessner, 2534.
Buckets and valves for lift, Sagar-Musgrave & others, 2572.
Regulating power of force, Messenger & Churchward, 2666.
Direct-acting steam pumping engines, Cherry, 2813.
Using a "displacer" in suction & lift, Foster, 2912.
Combined rotary engine and pump, Weyhe, 3019.
Direct-acting steam pumping engines, Bridgett, 3028.
Arranging compound pumping engines, Bridgett, 3028.
Balancing, for raising and forcing liquids, Pinnington, 3058.
Rotary, Lake (*Shedd & Jenks*), 3070.
Utilising back stroke of hydraulic press, Bayford, 3071.
Adapting engines to serve as, Lake (*Foster*), 3143.
Motive-power for working, Colborne & St. George, 3239.
Rotary pump to dispense with stop, Field, 3269.
Strainers for suction pipes of, Dunstan, 3273.
Rotary, Brae, 3276.
Combined double-action lift or force pump, &c., Rowe, 3287.
For ships, mines, fire-engines, &c., Rowe, 3287.
Rotary steam and other fluid, Thornycroft, 3305.
Rotary, for raising or forcing, Bartrum (*Powell*), 3316.
For hydraulic telegraphs, Norton & Lyle, 3343.
Air-engine to act as a pump, Tongue (*Rider*), 3404.

**Pumps; raising, forcing, &c. liquids—*cont.***
Raising water from sunken vessels, Parlour, 3445.
Direct-acting steam-pumps, Crohn & Okes, 3446.
Force, for feeding steam-boilers, Gedge (*Dufour*), 3449.
Double-acting force for ships, &c., McMinn, 3457.
Driving double-acting force pumps, McMinn, 3457.
Vacuum apparatus for raising liquids, Doull, 3503.
Trunnion oscillating engine or pump, Melvin, 3541.
Tenacious vulcanite for valves, MacLellan, 3578.
Direct-acting steam, Benson (*Cope & Maxwell*), 3598.
Direct-acting or "special" steam-pumps, Floyd, 3605.
Gas-motor engines for raising or forcing, Abel (*Otto*), 3615.
Rotary, Vacherot, 3828.
Compound steam pumping engine, Davies & Wilson, 3842.
Valves for, and packing pistons of, Cleminson, 3849.
Foot valves for bilge, Neuhaus & Hodgkin (*Blake*), 3867.
Steam; valves of same, Neuhaus & Hodgkin (*Blake*), 3867.
Double-acting ram and lift; working same, Fraser, 3872.
Bilge and main, Fraser, 3872.
Steam-engine for use in combination with, Pearn & Pearn, 3875.
Ejectors for lifting water, &c., Jackson & Jackson, 3928.
Direct-acting steam pumping engines, Cherry, 3984.
Casting and forging parts of steam, Cameron, 4051.
Double-acting reciprocating, Armstrong & others, 4059.
For mines; actuating same from bank, Armstrong & others, [4059.
Cup chain pump, Pothetos, 4065.
Roller bearing for pump rod guides, Hoadley, 4124.
Pistons for, Bousfield (*Leprince & Co.*), 4242.
Using rotary engines as, Weyhe, 4298.
Or ram worked by compressed air or gas, Preiswerk, 4324.
Direct-acting, worked by compressed gases, Preiswerk, 4324.
Packing for plungers and buckets, Brown (*Bailly*), 4329.
Gas-engine for driving, Alexander (*De Bisschop*), 4342.
Driving, Fryer & Alliott, 4395.
For use in making aërated waters, Vaughan, 4466.

**Punching & perforating cloth, leather, paper, &c.:**
Jacquard cards, Nuttall & Nuttall, 1114.
Webs or rolls of paper in printing cheques, &c., Beech, 1384.
Holes in leather, cloth, &c., Heath, 2542.
Combining punches with sewing-machines for, Searle & Cook, [2886.
Perforating sheets for autographic printing, Edison, 3762.
Type for perforating paper for type-writing, Edison, 3762.

**Punching and stamping metals:**
Machines for, and operating same, Nussey & Leachman, 139.
Central hole in screw nut blanks, Halley, 444.
Stamping out reed frames for harmoniums, &c., Gouverneur, 452.
Nail-plate for horse-shoe nails, &c., Heard, 480.
Blank nuts, Whittaker, 992.
Making "hot pressed nuts," Abel (*Charles & McKain*), 1240.
In making nut blanks, &c., Jensen (*Wegener*), 1421.
Forming nuts, washers, &c., Rogers, 1594.
Boiler plates by hydraulic machinery, Brown, 1607.
Forming watch chain swivel heads, Clark (*Edge*), 1615.
Punch for slotting needles, Oppenheimer (*Holland*), 1707.
Heading bolts, nails, screws, rivets, &c., Wells (*Johnson*), 1754.
Forming eyes upon pickaxes, hammers, &c., Chapman, 1823.
Heading wood-screw blanks, Lake (*Sloan*), 1849.
Heading, &c. screw blanks; punches for same, Frearson, 2005.
Tools for dressing stone, &c. to prevent waste, Adamson, 2021.
Moulding or forming watch-cases, &c., Thiery, 2367.
Feed attachment for power presses, Hughes (*Deming*), 2402.
Hole in screw-nuts, &c., Jensen (*Gustafson*), 2475.
Rivet holes in boiler tubes, Galloway & Beckwith, 2881.
Tube & rivet holes in boiler plates, Galloway & Beckwith, 2881.
Plates for boilers, tanks, girders, &c., Heaton, 2940.
Connecting parts of press punches, Bourry, 3411.
Holes in bars to form cotton-can rings, &c., Brayshaw, 3518.
Controlling and adjusting strain in, Mac Coll, 3814.
Out the core of nut-blanks, Clark (*Marland*), 4139.
Combs for flat pins, Harding & Harding, 4178.

**Punching or cutting wood.** *See* Cutting.

**Punkahs.** *See* Blowing engines.

**Purifying and filtering.** *See* Filters.

**Purifying gas.** *See* Gas-making.

**Purifying metals.** *See* Smelting.

**Purifying middlings.** *See* Sifting.

**Purple-ore:**
Using sesqui-oxide of iron as, Heinzerling, 2669.

**Purpurine.** *See* Dyes.

**Purses; portmonnaies:**
Fastening for, Pendleton, 337.
Applying perpetual calendars to, Fissilthaler, 2868.

**Purses; portmonnaies—*cont.***
Fasteners for, Pearson, 3183.
Fasteners for, Joyce (*Weintraud*), 3866.
Mounts for, Bechtold, 4201.
Memorandum, with self-liberating pencil, &c., Balles, 4273.

**Pyrometers.** *See* Thermometers.

## Q.

**Quadrants.** *See* Sextants.

**Quadrats.** *See* Printing paper.

**Quarries.** *See* Tiles.

**Quarrying.** *See* Mining.

**Quartz crushers.** *See* Grinding minerals.

**Quays.** *See* Harbours.

**Quilting fabrics.** *See* Sewing.

**Quilts (padding).** *See* Upholstery.

**Quintain.** *See* Games.

**Quoits.** *See* Games.

## R.

**Rabbit traps.** *See* Traps.

**Rabbles and paddles.** *See* Smelting.

**Rack pulleys.** *See* Pulleys.

**Racks (toothed).** *See* Wheels for machinery.

**Radiometers:**
For indicating intensity of rays of light, heat, or actinism [(radiation), Crookes, 3[illegible].

**Rafters.** *See* Beams.

**Rafts:**
Using mattresses and pillows as life, Clark (*Peck*), 68.
Construction, rig, and equipment of life, Atkin, 92.
Lowering and launching life, Atkin, 92.
Constructing and launching ships', Thompson, 188.
For floating anchors, Bullivant, 223.
For saving life, amusement, &c., Count de Liancourt, 3[illegible].
Or life-saving apparatus for ships, Whyte, 457.
Stuffing for life-saving, Cornish (*Cornish*), 577.
For conveying and landing troops, Cornish (*Cornish*), 577.
Using ships' bunkers or berths as life, Watts, 8[illegible].
Apparatus to be employed as a floating raft, Pike, 1466.
Constructing life, Parratt, 1600.
Providing ships or vessels with life, Machattie, 1792.
Making ships' fittings to be available as, Nicoll, 1[illegible].
Providing life, with floats, Johnson (*Cone*), 2219.
Constructing life, of oblong cassoons, Brown, 2249.
Life-boat rafts, Brown, 2441.
Securing and launching deck-houses or life, Jolley, 2461.
Construction, rig, and equipment of life, Atkin, 2[illegible].
Lowering and launching life, Atkin, 2485.
Self-inflating mattress usable as a raft, Lloyd, 3301.
Life-saving raft-boats, Dunn, 4008.
Constructing life, to prevent capsizing, Cunningham, 4143.

**Rags and waste; rag-engines:**
Utilising scraps of fur skins, Crosby (*Kellogg*), 324.
Old sacking, rope, &c. in making leather, Hardy (*Nissen*), 6[illegible].
Cutting flocks and mungo for flocking purposes, Laycock, [illegible].
Cutting flocks, mungo and, for flocking, Rhodes & others, [illegible].
Treating, for paper-pulp, Rocco, 1155.
Destroying vegetable matters in, Smith & Tolson, 1302.
Using waste of tanned hides, Johnson (*Lissagaray*), 1[illegible].
Using in non-conducting compositions, Leadbetter, 1[illegible].
Utilising discarded healds, Booth & Watson, 1716.
Combing or dressing waste silk, Souter, 1744.
Picking rags, &c. for paper-making, Latour, 1[illegible].
Treating shoddy and rags for making manure, Snelling, [illegible].
Using flax and tow waste, Mewburn (*Long & Desjardins*), [illegible].
Utilising discarded cards, De Montoison, 2110.
Cutting flocks or rags, &c., Lowe & others, 3379.

**Rags and waste; rag engines**—*cont.*

Disintegrating, for making felt, paper, thread, &c., Noad, 2493.
Using, for making coffins, Larkman & Diprose, 2788.
Producing fabrics from silk noil, Hebblethwaite, 2857.
Using flax waste for upholstering purposes, Kleinen, 2878.
Using woollen waste or shearings, Dayral (*Lopez*), 2935.
Treating, for explosive compounds, Dittmar, 3068.
Using leather clippings, pieces of skins, &c., Kellogg, 3139.
Using cotton-waste, cocoa-nut fibre waste, &c., Tongue (*Jolis-saint-Vonèche & others*), 3290.
Utilising india-rubber cloth waste and, MacLellan, 3578.
Washing cotton-waste, Kenworthy, 3655.
Carbonising vegetable matter in woollen rags, &c., Alexander (*Michel*), 4088.
Preparing yarn from silk noil, &c. for weft, Sharp, 4129.
Cotton-waste carding-engines, Wild, 4200.
Producing fabrics from silk noil, &c., Hebblethwaite, 4305.
Using cotton fly for padding, Pearson & Pearson, 4360.

**Railings for graves.** *See* Tombstones.

**Railway axles.** *See* Axles.

**Railway breaks.** *See* Breaks for railways.

**Railway buffers:**

Arrangement of springs for, Byron (*Godley*), 550.
Making, concave and convex vertically, Catlow, 969.
Compensating buffer apparatus, Pullman & Sterne, 1180.
Arranging and priming, Davis & Henwood, 2037.
Combined automatic buffer and coupling, Talbot, 2568.
Applying blocks of india-rubber, &c. to, Stone, 2695.
Fixing and arranging, Drummond, 3044.
Constructing; spring boxes for same, Turton, 4310.

**Railway carriage signals.** *See* Signals.

**Railway carriages, waggons, and trucks:**

Preventing accidents to, when axles break, &c., Millbourn, 7.
Compound material for covering, Fish, 9.
Supporting, when a tire breaks, Bluck, 72.
Couplings for, Sterne, 83.
Lattice framework covering for sides, &c. of, Rideal, 113.
Brushes for cleansing, Cheatle, 230.
Self-acting couplings for engines and, Redman & Siggery, 273.
Supporting, when an axle breaks, &c., Redman & Siggery, 278.
Sleeping; sanitary conveniences for, Burrell & Valpy, 275.
Hand or guard railings and safety platforms for, Maquet, 281.
Keeping, on the line when wheels or axles break, James, 284.
For conveying and trans-shipping coal, Connell, 302.
Coupling for supporting, when axles break, &c., Bath, 369.
Raising, tipping, and lowering coal trucks, &c., Marillier, 497.
Spiral bearing and draw springs for, Byron (*Godley*), 550.
Elastic spring coupling for, Schwanck, 618.
Surfaces for steps of, Haseltine (*Keene & Sawyer*), 700.
Cleaning; brushes & wipers for same, Earl of Caithness, 703.
Avoiding breakage in loading coal into wagons, Firth, 722.
Automatic spiral couplings for, Brewer (*Müller*), 758.
Pawl & ratchet gear for uncoupling for, Brewer (*Müller*), 758.
Opening and closing window sashes, Beaumont, 823.
Beds for sleeping cars, Lake (*Deudef & Wilkin*), 843.
Self-acting couplings for, Kilburn & others, 895.
Lever for propelling or shunting, Hughes (*Heshuysen*), 924.
Independent wheel frames or bogies for, Bland, 978.
Coupling links and coupling same from sides of, Bland, 978.
Continuous coupling; regulating laxity of trains, Hunt, 982.
Sleeping cars, Alexander (*Mann & Paterson*), 1017.
For sharp curves, Johnson (*Bañolas & Carlier*), 1023.
Bottom doors for mineral trucks or wagons, Wood, 1032.
Securing buttons in seats, &c., Cox & Hosmer (*Norwood*), 1067.
Automatic and hand couplings for, Sterne, 1090.
Compensating draw apparatus for, Pullman & Sterne, 1180.
For "post and rail" system and coupling same, Haddan, 1196.
Means of coupling, outside buffers, Goucher, 1248.
Keeping cattle-truck doors open a certain distance, Sonnenthal (*Mueller & Selig*), 1394.
Opening and closing windows of, Parlour, 1459.
Safety shoes for, Gilbee (*Tiffany*), 1556.
Draw bar coupling for, Heeley, 1617.
With two bodies and to run on common roads, Jones, 1697.
Opening and closing windows, Clark (*O'Donoghue*), 1748.
With side passage of communication, Johnson (*Rikli*), 1793.
Trucks for conveying either animals or goods, Beavan, 1858.
Water troughs and hay racks for cattle trucks, Beavan, 1858.
Continuous draw bars for, Kirkman, 1913.
Fittings for cattle and other trucks, Relph, 1982.
Portable folding elbow chair for, Jones, 1987.
Door fastener for; indicating fastening of same, Kaye, 2058.
Bearing springs for, Spencer, 2062.
Couplings for, and working same from sides of, Cohrs, 2146.
Bogies for, Alexander (*Rowan*), 2171.
Preventing lateral vibrating motion of, Tilp, 2259.
Controlling motion in, Morgan-Brown (*Ford & Dick*), 2261.
Blade or plate springs for, Holmes (*Porter*), 2311.
Mineral wagons or trucks; discharging same, Plimsoll, 2370.
Combined automatic buffer and coupling for, Talbot, 2568.

**Railway carriages, waggons, and trucks**—*cont.*

Self-acting means for closing doors, Kitson & Naylor, 2601.
Automatic double coupling for, Conradi (*Kesseler*), 2643.
Double-bedded sofas or seats for, Schoubersky, 2646.
Mineral wagons and draw bars, &c. for same, Hudson, 2677.
Refrigerating cars for perishable articles, Foster, 2688.
Coupling, from outside buffers, Parker & Murgatroyd, 2748.
Triple suspension to deaden shocks, &c. in, Wise (*Anthoni*), 2828.
Springs, &c. for, and arranging same, Wise (*Anthoni*), 2828.
Storing and supplying gas to, Sugg, 2842.
Forming a gang-way along the sides of, Vintras, 2877.
Actuating locks of doors of, &c., Edwards, 2906.
Arranging saloon and sleeping cars, De Pass (*Vidard*), 2916.
Under frames for, of sheet iron, De Pass (*Vidard*), 2916.
Welding coupling links, Lake (*Pittsburgh Chain, &c. Co.*), 2973.
Coupling and uncoupling, from outside buffers, Pratt, 2975.
Coupling draw bars of, Holland, 3008.
Fitting, &c. draw bars and their springs, Drummond, 3044.
Indicating duration, &c. of stoppages, Beaumont, 3079.
Automatic couplings; uncoupling same, Percy, 3214.
Links for and coupling same from sides of, Bland, 3234.
Springs for, Timmis (*Godley*), 3325.
Tip wagon; using main frame as a truck, Simmons (*Carr*), 3361.
Refrigerating structure for cars, Allegretti, 3377.
Adjustable tilts or covers; actuating same, Slater, 3391.
Constructing and fitting cattle trucks, Murray, 3405.
Automatic couplings, Hill & others, 3452.
New form of bar iron for mineral waggons, Benda, 3672.
Dress and finger guards for, Clark (*Gégnon*), 3743.
Hinging doors of; weather strips for, Clark (*Gégnon*), 3743.
Blade or plate springs for, Holmes (*Porter*), 3781.
Coupling and uncoupling, outside rails, Schrabetz, 3811.
For sea-side cliffs, hills, and other steep inclines, Hunt, 3926.
Indicating travelling condition & movements in, Lovell, 3950.
Rolling and screwing coupling bolts for, Fairbairn, 4037.
Self-acting couplings for, Kilburn & others, 4169.
Metallic frames and coverings for; floors, La Mothe, 4213.
Coupling hook for, Meadows, 4223.
Safety finger guard for doors of, Curtis, 4288.
Preventing or lessening vibration and shock in, Scott, 4297.
Raising, &c. treads of trucks, Scott, 4297.
Stops or guards for draw-bar cradles, Turton, 4310.
Combined draw-bar and automatic coupling for, Turton, 4310.
Brush for washing and cleaning, Sutherland, 4344.
Reducing lateral oscillation, &c. of, Adams & Livesey, 4390.
Bogies for, Armstrong & others, 4413.
Raising, tipping, and lowering coal, &c. trucks, Thomson, 4522.

**Railway carriages (heating).** *See* Heating.

**Railway carriages (lighting).** *See* Lamps.

**Railway carriages (locking, &c. doors).** *See* Locks.

**Railway carriages (ventilating).** *See* Ventilating.

**Railway signals.** *See* Signals.

**Railway tickets.** *See* Tickets.

**Railway wheels.** *See* Wheels for carriages.

**Railways (rails, sleepers, points, crossings, &c.):**

Interlocking signal levers with point levers, Sington, 57.
Treating peat, &c. for and making sleepers, Wilkinson, 60.
Metal for rails, Browne (*Foundries & Forges Co.*), 120.
Self locking switches, Armstrong, 142.
Split spikes for holding rails, Lake (*Whittemore*), 163.
Lock-nuts and washers for fish-bolts, Bayliss & Jones, 174.
Portable apparatus for drilling holes in rails, Enoch, 190.
Sleepers for, of unhewn timber, Dufrené (*Lévêque*), 195.
Locking and interlocking points, Brierley & others, 201.
Chairs; locking nuts of screw-bolts, Cunliffe, 238.
Strengthening and supporting rail joints, Savage, 271.
Actuating and locking points, Webb, 462.
Iron transverse sleepers, Lake (*Lazar*), 556.
Chairs and keys for same, Livesey, 599.
Joining and fishing rail ends, Chubb, 653.
Washers and nuts for rails; locking same, Myles (*Levey*), 670.
Chairs and wedges for, securing rails in same, Chatterton, 730.
Joining rail ends, Smith & Haddan, 755.
Joining rail ends; fastening fish-plates, Searle, 774.
Excavating and removing earth from cuttings, Lawson, 780.
Forming or "fishing" or jointing rails, Lawson, 802.
Shaping splice and main rail of crossings, Mansbridge, 811.
Interlocking switches and facing points, Smith, 819.
Joining rail ends to equalise deflection, Roberts, 983.
Preventing collisions on ("life preserver"), Owen, 960.
Working points by gas used in lighting same, Bland, 978.
System of rails, Johnson (*Bañolas & Carlier*), 1002.
Automatically closing points if partly open, Curtis, 1013.
Chairs and vertical wedges for same, Somerset & Hayes, 1021.
Double chairs in lieu of fish-plates, Somerset & Hayes, 1021.
Fastenings for rail ends, Harrison, 1056.
Compound iron and steel rails, Wilmart, 1085.

**Railways (rails, sleepers, points, &c.)—*cont.***

Bowl or pot sleepers, chairs, and keys, Aldred, 1187.
"Post & rail" or "wall or saddleback" system, Haddan, 1198.
Bearing rails for "post and rail" railways, &c., Haddan, 1198.
Posts for "post and rail" railways; chairs, Haddan, 1198.
Lock-nuts for fish-plate joints, Harris, 1222.
Locking points and switches, Brierley & others, 1284.
Portable, for road carriages, Von Wojewodsky, 1416.
Guarding and locking points, March & Dalgliesh, 1611.
Arches and trusses for elevated, Newton (*Morgan*), 1675.
Excavator for use on, Mills (*Chapman & Souther*), 1688.
Automatically locking points, Newton (*Kreeft*), 1843.
Longitudinal and transverse sleepers, Johnson (*Hilf*), 1856.
Preserving sleepers by "nicolline," Nicoll, 1933.
Removing obstructions from points, Brierley & others, 2028.
Self-locking switches and working same, Farvis, 2077.
Preserving wooden sleepers, Gedge (*Richard*), 2144.
Bending rails, Abel (*Reishauer & Bluntschli*), 2172.
Locking screw-nuts of fish-plates, Ball, 2187.
Wrought iron sleepers; fixing rails to same, Gedge (*Paternotte [& Larmoyeux*), 2227.
Boring and cutting holes in fence posts, McGillivray, 2246.
Tunnels for, through water bearing strata, &c., James, 2294.
Ventilating underground, Dixon, 2319.
Tamping or adjusting rails, Ladd (*Fox*), 2407.
Shaping rail joint clips, Smith & Woodrow, 2561.
Automatically locking points, Livesey & Edwards, 2563.
Placing circuit closers under rail, Clark (*Rousseau*), 2657.
Hollow rails and screw pins or spikes for, Atkinson, 2733.
Chairs and keys for holding hollow rails, Atkinson, 2733.
Sleepers, fish-plates, and chairs, Bonneville (*Legrand*), 2759.
Keying rails to sleepers, Bonneville (*Legrand*), 2759.
Constructing, for mines, Bonneville (*Legrand*), 2759.
Closing facing points by passing trains, Curtis, 2769.
Laying dust along, Morgan-Brown (*Halsted*), 2790.
Fashioning rails of continuous crossings, Williams, 2938.
Guarding and locking facing points, March & Dalgliesh, 2959.
Casting rails in heated moulds, Hyatt, 3201.
Working points by gas used in lighting same, Bland, 3242.
Sleepers, chairs, and keys, Aldred, 3330.
Reducing friction in turntables, Lillie, 3355.
Spikes, bolts, &c. for fastening rails and chairs, Newman, 3384.
Securing bolts, &c. in rails and chair keys, Newman, 3384.
Locking shunting points, Annett, 3427.
Traversing crossings, Piehlier, 3499.
Excavating earth for forming cuttings, King, 3536.
Constructing subaqueous tunnels for, Maynard, 3557.
Sleepers for, to avoid vibration, Johnson (*Castanier*), 3612.
Chairs for; fastening rails in same, Biddell, 3642.
Combined and compound chairs and sleepers, Biddell, 3642.
Fish-plates; locking screw-nuts or bolts, Carlile, 3730.
Securing points during passage of trains, Bailey, 3808.
Grinding ends of steel rails, Handyside, 3865.
For sea-side cliffs, hills, and other steep inclines, Hunt, 3926.
Indicating imperfections or inequalities, Lovell, 3950.
Nut-lock for fish-bolts, Frost, 3973.
Pot sleeper chairs, MacLellan & Paterson, 3990.
Trailing points for securing facing points, Matthews, 4011.
Securing bolts of fish-plates, Sterne, 4075.
Removing obstructions from points, Messrs. Brierley, 4180.
Bolts for fish-plates, Thompson (*Cazin*), 4246.
Ventilating tunnels of considerable length, Bell, 4261.
Compound for making sleepers, Wilkinson, 4267.
Locking bolts and nuts of fish-plates, King, 4406.
Portable, for road carriages, Von Wojewodsky, 4424.
Fixing railway bolts, spikes, or dogs, Lawrence, 4436.
Actuating and locking points or switches, Kelly, 4452.
Arranging square points for back shunting, Kelly, 4452.
Switch and draw-bridge lock, Clark (*Rousseau*), 4517.

**Raising liquids.** *See* Pumps.

**Raising ships' boats.** *See* Ships' boats.

**Raising sunken vessels.** *See* Ships (raising, &c.).

**Raising weights.** *See* Hoists.

**Rakes:**

Attaching handles to, Lee, 991.

**Range-finders.** *See* Telemeters.

**Ranges and stoves.** *See* Fire-places.

**Rasps for the hands:**

Composition for handles in making skin, Musgrave, 1508.

**Ratchet and drill braces:**

Substitute for toothed wheel and pawl of, Wright, 754.
Self-acting feed motion for, Bowker, 958.
Supporting, by means of vacuum, King, 1903.
Constructing ratchet actions and, Comber, 3189.
Friction clutch for working, Imray, 3818.

**Rat-traps.** *See* Traps.

**Reading cypher correspondence.** *See* Cryptographs.

**Reading desks or stands.** *See* Furniture.

**Reaping and mowing machines; gathering, bind- [ing, &c. cereals:**

Collecting and binding, Friedländer (*Jachimovicz*), [illegible].
Rakes & operating mechanism for same, Lake (*Osborne*), 471.
Self-binding & tying up mechanism for reapers, Bomford, [illegible].
Small machine for, Haddan (*Petillat*), 851.
Raising and lowering cutter bar; coupling knives, Fell, 1213.
Crop and ear lifters for raising laid crops, Hughes, 1311.
Binders' seats and tables for, Haseltine (*Sellack*), 1361.
Folding grain receptacles for, Haseltine (*Sellack*), 1361.
Tying knots in binding sheaves, Wise (*Kay*), 1461.
Machine and band for binding grain, Travis, 1666.
Gathering and binding cut crops, Brown, 1648.
Increasing power apparatus, Henderson (*Vaillant*), 1654.
Grinding reaper knives, Handyside, 1703.
Using steam cultivators for hauling, Martindale, 1721.
Safety disengaging motion for, Livesey & Berry, 2273.
Sheaf tying and binding apparatus for, Walker, 2279.
Band spinners or twisters for, Walker, 2279.
Lifters for raising fallen crops, Walker, 2279.
Binding grain in sheaves, Robinson (*Gammon & others*), 2361.
Adjusting, &c. tines of horse-rakes, Howard & Bousfield, 2363.
Mounting turf cutters, &c. on lawn-mowers, Green, 2447.
With flexible endless scythes, Bolton & Manley, 2585.
Collecting and binding grain-straws, Cranston (*Wood*), 2629.
Gathering corn or other hay crop, Gray, 2638.
Working without chain or toothed gearing, Von Grubinski, [illegible].
Transmitting motion to knives & rakes in, Von Grubinski, [illegible].
Watering knives, to prevent clogging, Goode, 2651.
Gathering corn and similar crops, Wilders, [illegible].
Pitman bearings for, Lake (*Harrison*), 2774.
Machine with double-acting blades, Dann (*Abadie*), 2794.
Portable band or tie for binding wheat, Hodgetts, 2807.
Binding cut crops into sheaves, Withers & Wells, [illegible].
Collecting and tying corn, &c. into sheaves, Hughes, 2833.
Gathering & binding mechanism for reapers, Johnston, [illegible].
Lawn-mowers, Ransome & Ling, 3261.
Self-dumping horse-rakes, Pellow (*Barclay & Kennedy*), [illegible].
General construction of, Hornsby & others, 3482.
Actuating, &c. rake & gathering arms of reapers, Howard, [illegible].
Self-cleaning gear for reapers; hinged cams, Howard, 3543.
Gearing for imparting motion to cutter bar, Howard, 3543.
Gathering and pitching corn for loading, Wakefield, [illegible].
Harvesters for either reaping or mowing, Johnston, [illegible].
Automatic binding apparatus; using string, Johnston, [illegible].
Jointed or hinged teeth for "collectors," Lander, 3851.
Giving motion to & stopping knife bar, Gardner (*Gray*), [illegible].
Traction engine for propelling reapers, Turner, [illegible].

**Reburning animal charcoal.** *See* Charcoal.

**Reclaiming land.** *See* Breakwaters.

**Recreative games.** *See* Games.

**Rectifying alcholic liquids.** *See* Distilling.

**Reducing metallic ores.** *See* Smelting.

**Reducing or grinding.** *See* Grinding.

**Reeds for looms.** *See* Weaving (lays).

**Reeling, rolling, or coiling paper, &c.:**

From one roller on to another, Bebbington, 2863.

**Reeling yarns and threads.** *See* Winding.

**Reels and bobbins.** *See* Bobbins.

**Reels or screens.** *See* Sifting.

**Refining metals.** *See* Smelting.

**Refining oils.** *See* Oils.

**Reflectors:**

Light and heat, Clark (*Balestrieri*), 89.
For gasaliers and other lamps, Atkins & Torr, 894.
White metallic alloy for making, Clark (*Le Marquand*), [illegible].
Reading lamp, Alexander (*Mann & Paterson*), 1617.
Combining, with lamps, clocks, &c., Challender, 1667.
Corrugated glass, for lamps or burners, Pulford, 1288.
For lamps, gas-burners & lanterns, Jewitt (*Creighead*), 1328.
For gas and other burners and lamps, Dixon (*Marsh*), [illegible].
Reflecting roof and sky-lights, Hyatt, 4063.
For safety-lamps, &c., Souheur, 4500.
Speculum metal and glass; turning and building up same, [Bonsenor, [illegible].
Mounting and preventing distortion of, when in use, [illegible] [illegible].

**Refrigerators; refrigerating; freezing; ice-making; cooling liquids:**
Water in petroleum vapour engines, Abel (*Daimler*), 71.
Producing cold for ice-making, Weatherby, 351.
For brewers; preserving food, Weatherby, 351.
Combined freezer or churn & beater, Benson (*Redhaffer*), 388.
Joint for securing tubes in plates of, Atherton, 396.
Cooling air for use in vinegar making, Pounsett, 447.
For use in steam and vapour condensers, Boulton, 694.
Cooling liquids in breweries, &c., Gooch, 775.
Floors for freezing water for skating, Mackay & Rae, 1073.
Refrigerating floors for cooling malt, Mackay & Rae, 1073.
Compressing air for chilling bodies, West, 1401.
Or cooling wort and other liquids, Tufnock, 1530.
Ice-making, Siddeley & Mackay, 1726.
Tubular screw-apparatus for cooling wort, &c., Walker, 1886.
Compressing air for ice-making, &c., Willans (*Willans*), 1897.
Producing cold for ice-making, &c., Clark (*Giffard*), 2064.
Cooling water by waste cold, Clark (*Giffard*), 2064.
Compressing air for producing cold, Preiswerk, 2184.
Making ice for skating rinks, West & Jacobi du Vallon, 2239.
Device for, in making chloride of lime, Riddell, 2316.
Self-acting cold current generator, Wawn & Willcox, 2340.
Ice-making, cooling fluids, &c., Coughlin, 2413.
Congealers, ice-houses, &c. for ice-making, Coughlin, 2413.
For cooling wort or other liquids, Severn, 2435.
For producing, &c. cold air for preserving food, Foster, 2688.
Chilling carcases of animals by, Foster, 2688.
Using liquid sulphurous acid for freezing, Pictet, 2727.
Arranging freezing apparatus, Pictet, 2727.
Making block ice, Hughes (*Currie & Holzmann*), 2825.
Ice-houses & store rooms, Hughes (*Currie & Holzmann*), 2825.
Cowl and screw apparatus for, Stephens, 2872.
or cooling concentrated sulphuric acid, Sauvée (*Faure & Kessler*), 2897.
Cooling or refrigerating fluids, De Vall, 2991.
Cooling oils by expansion of compressed gas, Young, 3137.
For preserving fruits, &c., and cooling water, Allegretti, 3377.
Producing air currents, &c. in, Pate (*Cattell*), 3594.
Producing ice by natural or still process, Gamgee, 3682.
Producing transparent "carafes frappées," Gamgee, 3682.
Forming ice on moulds for ornamenting, &c., Gamgee, 3682.
Hollow portable moulds for ice-making, Gamgee, 3682.
Vessel for cooling or refrigerating, Matthews, 3698.
Cooling air for refrigerating, Maw, 3699.
Abstracting heat in & preventing access of heat to, Maw, 3699.
Vessels usable as, Maw, 3699.
Cooling distillers' worts, Wilson, 3855.
Cooling and refrigerating machine, Stanley, 3907.
Ice-making, cooling fluids, &c., Wheeler (*Coughlin*), 4054.
Congealers for skating rinks, Wheeler (*Coughlin*), 4054.
Using congealers as part of structure for making and storing ice, Wheeler (*Coughlin*), 4054.
Cooling brewers' wort, vaults, &c., Barlow (*Galland*), 4079.
Cutting ice into flakes, Kent, 4222.
Compressing air for producing cold, Preiswerk, 4324.
Forming and maintaining ice skating rinks, Gamgee, 4412.
Cooling water for condensing steam, Cunningham, 4441.
Constructing refrigerators, Roby, 4516.
Working freezing or refrigerating machines, Gamgee, 4519.
Using compounds of gases and vapors in freezing-machines, Gamgee, 4519.

**Regenerative gas furnaces.** *See* Furnaces.

**Registering, indicating, and marking:**
Number of articles sent to laundries, &c., Russell, 109.
Checking fares in tram-cars, &c., Lake (*Imlay*), 253.
Tell-tale or registering clocks, Theiler & Higgins, 423.
Cheques or tallies for goods delivered, Cooper, 728.
Action and working of pneumatic breaks, Smith, 875.
Billiards and similar games, Lea, 1132.
Billiards and similar games, Best, 1150.
Recording steam gauges, Haseltine (*Edson*), 1181.
Checking receipt of money or goods, Bain, 1253.
The locking and unlocking of locks, Kaye, 1295.
Liquids drawn in public houses, &c., Lillie, 1333.
Hand alarm register for tram-cars, &c., Doolittle, 1434.
Apparatus for tram-cars, theatres, &c., Wappenstein, 1597.
Time occupied, distance, and fares in cabs, &c., Nedler, 1609.
And measuring distance travelled by vehicles, Young, 1689.
Fare register for public vehicles, Davis, 1874.
Apparatus for tram-cars, buildings, &c., Mueller, 2120.
Yarn counters or indicators for mules, Orme, 2130.
Checking receipt and payment of money in shops, Lofts, 2153.
Billiards and similar games, Hare, 2203.
Fare and passenger register for tram-cars, &c., Feeny, 2228.
Tram-car counters, Morgan-Brown (*Johnson & Harding*), 2250.
Cutting or shaping counters in bone, wood, &c., Mincher, 2449.
Delivery of measures of liquids or solids, Rimington, 2630.
The rise and fall of liquids, Morris & Hunter, 2632.
Indicating quantity in rolls of cloth, Lake (*Talcott*), 2661.
Fare registers, Bonneville (*Hornum & others*), 2760.
Passengers and fares in omnibuses, &c., Clark (*Thomson*), 2864.
Indicating contents of casks, tanks, vats, &c., Newbold, 2964.

**Registering, indicating, and marking—*cont.***
Indicating quantity drawn from casks, &c., Newbold, 2964.
Ticket indicating and registering machine, Tee, 3024.
Impressions in embossing and stamping, Napier, 3074.
Stoppages of railway and other vehicles, Beaumont, 3079.
Fare and distance indicator for cabs, Foster, 3421.
Speed of trains, &c., Wier, 3534.
Checking receipt of money or goods, Bain & Urch, 3602.
Number of persons entering tramway-cars, &c., Farrell, 3604.
Coal-weighing and registering machine, Johnston, 3664.
Combined grain, &c. weighing-machine, sack filler, and automatic register, Goodwin, 3765.
Money-collecting and ticket-distributing box, Semple, 3888.
Inequalities in rail & tramways & their carriages, Lovell, 3950.
Passenger register for omnibuses, &c., King (*Lauder*), 3975.
Number and fare tell-tales for vehicles, Flynn, 4119.
Checking receipts of money, Britten, 4450.

**Registering speed of machinery.** *See* Indicating.

**Regulating & controlling water-supply.** *See* Valves.

**Regulating speed of engines.** *See* Governors.

**Regulators (gas).** *See* Gas-regulators.

**Regulators or valves.** *See* Valves.

**Reins.** *See* Harness.

**Relishing or tenoning.** *See* Cutting.

**Reservoirs.** *See* Cisterns.

**Resins and gum-resins.** *See* Gums.

**Resonance (imparting to soft metal goods).** *See* Metallic alloys.

**Respirators; supporting respiration; face shields:**
Face shields or respirators for firemen, &c., Sinclair, 597.
Under water & in suffocating atmospheres, Abel (*Fayol*), 998.
Respirator cases of tortoise-shell, &c., Wordsworth, 2411.
Applying magnets to, Lyon, 3382.
And smoke helmets for firemen, &c., Brewer (*Loeb*), 3701.
Magnetised, Welton, 3727.
Supplying air to firemen's dresses, &c., Jensen (*Ostberg*), 3968.

**Reticules.** *See* Bags.

**Retorts:**
Setting and combining coal gas, Kidd (*Arnold*), 66.
Cement for repairing, setting, lining, &c., gas, Sellars, 112.
Lids and mouth-pieces for gas, Waller, 184.
Method of emptying hydrogen gas, Simmons & Morris, 289.
Arranging, in reducing furnaces, Wigg & Kennedy, 314.
For concentrating sulphuric acid, Chivers & Chivers, 349.
Arranging, &c. glass, for concentrating acids, &c., Potter, 658.
For distilling coal, shale, &c., Findlay & Jack, 930.
For cokeing and destructive distillation, Nicholas, 1116.
For reducing powdered ore for iron and steel, Larkin, 1125.
Heating gas, Lockey, 1159.
Heating gas, in furnace flues, Stirling & Peacock, 1224.
For carbonising spent tan, Murdoch (*Honnaij*), 1397.
For treating horn, &c. for manure, Johnson (*Lissagaray*), 1484.
Removing pressure in gas, Copp & White, 1948.
For distilling coal, shale, &c., Wood, 2076.
Discharging coke from gas, West, 2346.
And mouth-pieces for gas-making, Brothers & Brothers, 2381.
Mounting, &c. for gasifying oil, Brookes (*Du Rieux*), 2412.
For making bichromate of potash, Clouet, 2441.
Relieving gas, from pressure, White, 2473.
Regulating pressure in and heating of, Birrell, 2604.
Charging and discharging gas, Warner, 2610.
Removing and utilising graphite deposited on, and in gas, Aitken & Young, 2725.
For making gases, Aitken & Young, 2725.
Gas retort houses, Anderson, 2843.
Drawing gas and other, Steel, 2930.
For gas-making, Bonneville (*Duchesne*), 3010.
For revivifying bone-black, Clark (*Gandolfo & Jarboe*), 3030.
Charging gas, Whitaker, 3220.
Moulding clay, Ingham & Hill, 3253.
Self-sealing lids for gas and other, Soley (*Collinson*), 3260.
Heating gas, in furnace flues, Stirling & Peacock, 3436.
For making lime & calcining cements, Thompson & Ladelle, 3535.
For roasting metallic ores, Thompson & Ladelle, 3535.
A "hollow wall" or substitute for all kinds of, Lyttle, 3579.
Coolers, dredgers, crushers, and dischargers for, Lyttle, 3579.
Composition for forming gas-proof joints, Lyttle, 3579.
Utilising waste heat of, for heating air, Maw, 3699.
Drying and raising temperature of gases in, Maw, 3699.
For carbonising and distilling, Johnson (*Huyard*), 3759.
For making coal gas, Cornforth & others, 3826.
Hanging flap valve for relieving gas, White, 3858.

Retorts—*cont.*
Constructing and arranging gas and other, Bennett, 3850.
And their fittings for distilling shale, &c., Bennie, 3934.
Carriages for use in making clay, Cliff, 4174.
Charging, drawing, opening, & closing gas & other, Steel, 4401.

Revivifying animal charcoal. *See* Charcoal.

Revolving fire-arms. *See* Fire-arms.

Rheostats. *See* Electricity.

Rhones or eaves-gutters. *See* Drains.

Rice (scouring). *See* Grain and seeds (treating).

Riddles. *See* Sifting.

Rifles. *See* Fire-arms.

Rifling metals. *See* Boring metals.

Rigging (ships'). *See* Ships' rigging.

Ring & traveller frames. *See* Spinning (twisting).

Rings and hoops. *See* Hoops.

Rinks, rink skates. *See* Games.

Rivers, river beds (dredging). *See* Dredgers.

River-walls. *See* Breakwaters.

Rivets. *See* Nails.

Rivetting metals:
Machines for, and operating same, Nussey & Leachman, 139.
Boiler plates by hydraulic machinery; rivets, Brown, 1607.
Machine for, Lake (*Allen*), 2182.
Hydraulic rivetter, Fenby, 3584.
Controlling and adjusting strain in, Mac Coll, 3814.

Road-making; foot-paths; paving; paving-blocks:
Treating peat, &c. for & making paving-blocks, Wilkinson, 60.
Compound material for paving, Pope, 159.
Utilising slag for blocks, flags, and curbing, Luckenbach, 243.
Constructing and laying wood paving, Henson, 575.
Paving tramway tracks, Livesey, 599.
Applying cements to carriage drives and pathways, Ross, 850.
Surface facing for asphalte and other roads, Prosser, 861.
Asphalte rolling stock tracks, Prosser, 861.
Forming wooden and composite roads, Prosser, 861.
Ligno asphaltum paving-blocks, Clark, 1230.
Grooving blocks or slabs of slate for paving, &c., Elwes, 1386.
Perforating asphalte for reception of stones, &c., Adam, 1578.
Moulding and compressing asphalte blocks, Randolph, 1648.
Fluid or liquid asphaltum for, Lake (*McClintock*), 2080.
Using asphaltum in compositions, Lake (*McClintock*), 2080.
With wood blocks and intermediate fillets, Copland, 2099.
Consuming smoke in "compressors," Gedge (*Dubois*), 2175.
Compounds of vegetable fibrous matters, &c. for, Nicoll, 2347.
Of combined iron and asphalte, Davison & others, 2656.
Combination of wood paving with asphalte, Harrison, 3206.
Of stone and wood blocks laid alternately, Rowbottom, 3637.
Making flint and pebble blocks for pavements, Carmody, 3720.
Asphaltum mastic for roads and pathways, Clark, 3902.
Forming concrete or cement foundations for, Clark, 3902.
Compound or material for, Baggeley, 4067.
Using broken iron-stone, &c. for footways and, Whittard, 4090.
Compound for paving school yards, &c., Wilkinson, 4267.
Non-porous, &c. blocks of "Killas" rock for, Cowell, 4409.
Concrete for making foot-paths, Ducournau, 4444.

Roads (cleansing):
Clearing streets of snow by steam or hot-water, Cowper, 165.
Stand post hydrant for, Blakeborough & Beck, 227.
Sweeping paths and drives, Sinclair & Clayton, 629.
Carts for scavenging purposes, Livingstone, 837.
Self-contained sweeping-machine for carts, Burgess, 915.
Scraping device for sweeping-machines, Burgess, 915.
Collecting and removing street refuse, McCarthy, 1146.
Water-carts or vans, Bayley, 1447.
Rotary brush machine for sweeping, Kitson, 1449.
Hydrants for watering roads, Tylor, 1857.
Collecting and removing street refuse, Bayley, 2308.
Self-supplying street cleaners, Barker, 3329.
Combined street-sweeping & cart-loading machine, Case, 3447.
Snow dissolving machine or "digester," Bickerton & Wormald, 4492.

Roasting coffee. *See* Coffee.

Roasting ores. *See* Smelting.

Rock (drilling). *See* Boring rock.

Rocks (sunken):
Apparatus for removing, Alley, 1532.

Roller-blinds. *See* Window-blinds.

Rollers or cylinders:
For horse-shoe machines, Lake (*Russell*), 48.
For use in making shuttle springs, Pye, 70.
For use in preparing cotton, &c., Edwards (*Edwards*), 387.
For splaying and bending cask hoops, Bradshaw, 364.
Heated grooved, for drying, &c. fabrics, Stark, 370.
Surfacing milling machine, Webster, 459.
For machines used in drawing card pins, Worrall, 640.
For rolling steel ingots, Scott, 816.
For rolling mills, Clark (*Larocque & Larocque*), 927.
Making, from scrap iron, Clark (*Larocque & Larocque*), 927.
For pulverising flocks, mungo, rags, &c., Rhodes & others, 941.
For use in spinning wool, &c., Newton (*Hibry*), 1185.
For rolling puddler's rabbles and paddles, Hunting, 1309.
Damping, for lithographic printing, Woodcock, 1345.
For use in preparing and combing wool, Kelly, 1366.
Grooved, for moulding artificial fuel, Kinsey, 1442.
Rolls for use in finishing fabrics, Newton (*Palmer*), 1437.
For producing lumps or blanks for horse-shoes, Pilté, 2072.
Conical, for feeding ovens, kilns, &c., Wood, 2076.
Cleaning or polishing, for use in paper-making, Cooke, 2166.
For combing-machines, Stake & Whitehead, 2211.
Compound for forming and covering spinning, Tice, 2275.
With cutting plates for cutting sugar, Dann (*Ledue*), 2368.
Spiral fluted, for washing-machines, Blake, 2490.
For rolling tobacco, Butterworth, 2622.
Feed, for chaff-cutting and other machines, Whitaker, 2676.
For rolling mills, Imray (*Hahn*), 2684.
For revolving shutters, Woodburne, 2752.
Guide, for use in dyeing, &c. fabrics, Messrs. Marsden, 2846.
For rolling metals, Imray (*Hahn*), 2903.
Die, for forming tacks and awls, Clark (*Williams*), 3231.
For rolling metals, Lake (*Billings*), 3244.
For rolling metals, Brownhill & Smith, 3368.
Elastic pressure, for printing-machines, Johnson (*Le Tellier [& Verstraet*), 3483.
Nipping, for tentering & weaving, Burlison & Whitaker, 3512.
Sectional, for wringing and mangling machines, Selley, 3557.
Spiral-faced, for fleshing, unhairing, &c. hides, Jones, 3679.
Fluted rollers for drawing and gill-boxes, &c., Thackray, 4471.
Electro-coppering calico printers' rollers, Wilde, 4515.
Engraving calico printers', Lake (*Hops*), 4534.

Rollers (bearings for). *See* Bearings.

Roller-skates. *See* Games.

Rolling lawns, drives, &c. *See* Garden implements.

Rolling metals:
Bending and pressing horse-shoes, Lake (*Russell*), 48.
Shaping Paragon and other wire, Worrall & Worrall, 139.
Bars for nut blanks, Clark (*Johnson*), 149.
Skelps and welding same into tubes, Johnson, 299.
Welding tubes, pipes, flues, &c., Hunt (*Flagler*), 299.
Splaying and bending cask hoops, Bradshaw, 364.
Couplings for repairing mill shafts, Turner, 426.
Ribbed plates for horse-shoe nails, &c., Heard, 489.
Bending rods in making spring washers, Grover, 774.
Railway and tramway rails, Lawson, 802.
Steel ingots or bars, wrought iron, &c., Scott, 816.
Making rolls for, Clark (*Larocque & Larocque*), 927.
Arranging rolls, &c. for rolling hoop iron, &c., Matthews, 1089.
Puddlers' rabbles and paddles, Hunting, 1309.
Bars for flapped axles, Abel (*Meunier*), 1433.
Skelps for making tubes, Allen, 1562.
Boiler plates, rails, bars, &c., Brown, 1607.
Rolls for rolling blanks for horse-shoes, Pilté, 2072.
Or bending blanks for horse-shoes, Pilté, 2072.
Blocks and cores for making pipes, Newton (*Brooks*), 2128.
Bars for making cutters of clippers, Phipps & Burman, 2216.
Welding iron and steel tubes, Howard & Sutherland, 2304.
Forming watch-cases, &c., Thiery, 2367.
Various forms of beams, &c., Imray (*Hahn*), 2634.
Adjusting positions, &c. of rolls in mills, Imray (*Hahn*), 2634.
Preparing plates for, and welding tubes, Kesterton, 2763.
Treating and utilising mill scales, Sauvée (*Helson*), 2797.
Bearings for rolls used in, Jones, 2822.
Bending and flanging boiler tubes, Galloway & Beckwith, 2882.
Arranging two, three, and five high rolls, Imray (*Hahn*), 2903.
Housings of rolling mills, Imray (*Hahn*), 2903.
Equalising tension of driving belts in, Imray (*Hahn*), 2903.
Raising, &c. rolls by hydraulic power, Imray (*Hahn*), 2903.
Forming crimping tacks and awls, Clark (*Williams*), 3231.
And compressing steel ingots, &c., Lake (*Billings*), 3244.
Machine or "three high system" for, Lake (*Billings*), 3244.
Springs for railway & other vehicles, Timmis (*Godley*), 3322.
Differential or triple system for, Brownhill & Smith, 3368.

**Rolling metals**—*cont.*
Adjustable tables for use in, Butler & Butler, 3471.
Rolling, straightening, and finishing, Butler & Butler, 3471.
Cooling pipes, &c. in, to avoid warping, Butler & Butler, 3471.
Welding iron or steel tubes, Brownhill & Smith, 3577.
Bending and welding cotton-can rings, &c., Brayshaw, 3618.
Section or form of bar-iron for waggons, &c., Benda, 3672.
A number of tires in one piece, Dyer, 3736.
And drawing soft metal tubes, Edwards (*Mitchell*), 3764.
Open jointed, welded, & other tubes, Brownhill & Smith, 3853.
Flanching steam-boiler rings and tubes, Plant, 3884.
Iron, steel, and other metal tubes, Deeley, 3945.
Screwing bolts, coupling, and other screws, Fairbairn, 4037.
Nut blanks, Thompson (*Casin*), 4246.
Blanks for table cutlery, &c., Hallas & Stevens, 4276.
Railway and other wheels, pistons, &c., Brown & Beard, 4449.
Rounding and consolidating blooms, Brown & Beard, 4449.

**Rolling or reeling paper, &c.** *See* Reeling.

**Rolling tobacco.** *See* Tobacco.

**Rones or eaves-gutters.** *See* Drains.

**Roofing tiles.** *See* Tiles.

**Roof-lights.** *See* Windows.

**Roofs; roofings; coverings for roofs:**
Compound material for covering, Fish, 9.
Coverings or protectors of, Rideal, 113.
Compound material for and forming, Pope, 159.
Securing sheet metal roofing, Moore & Moore, 354.
Fabric for ("asphaltic carpet"), Gedge (*Gaudefroy*), 433.
Cements for, and constructing finials, Ross, 850.
Transferring designs to, Vaughan (*Maynard*), 1003.
Ornamenting, fire-proofing, and constructing tile, Hyatt, 2015.
Forming water-drip on edge of roofing glasses, Hyatt, 2015.
Fluid or liquid asphaltum for, Lake (*McClintock*), 2080.
Using asphaltum in compositions, Lake (*McClintock*), 2080.
Forming, of concrete slabs, Lascelles, 2151.
Reverse mode of constructing girder, Hyatt, 2359.
For gas retort houses, Anderson, 2843.
Illuminating, ventilating, and ornamental roofs, Hyatt, 3357.
Asphaltum mastic for roofing, Clark, 3902.
Moulded cement roofs; casting same in situ, &c., Hyatt, 4063.
Casting plastic with dormers and sky-lights, Hyatt, 4063.
Illuminating, inlaying, and ornamenting, Hyatt, 4063.
Foundations and rafters for plastic, Hyatt, 4063.
Flat-arch, mansard, and other inclined, Hyatt, 4063.
Fire-proof wood lattices for foundations of, Hyatt, 4063.
Compound covering for, Wilkinson, 4267.

**Rooms (disinfecting).** *See* Disinfecting.

**Root-crops (thinning, &c.).** *See* Tilling.

**Root-pulpers:**
Slicing and pulping turnips, &c., Wilson & Battersby, 375.
Mounting winch handles on, Wilson & Battersby, 375.
For cutting finer or coarser as required, Corbett, 2365.
Combining root cleaners with, Corbett, 2365.

**Roots (cleaning):**
Cylindrical washing apparatus, Twist, 2337.
Removing dirt from turnips, mangel-wurzel, &c., Corbett, 2365.

**Roots (digging).** *See* Tilling.

**Roots (gathering or picking up).** *See* Garden.

**Roots (topping and tailing).** *See* Tilling.

**Ropes, cord, twine, and string; oakum:**
Paper material for, Gandy, 52.
Preserving, from decay, &c., Clark (*Rogé & others*), 288.
Warp fabrics for and method of making, Bouley, 451.
Holding or releasing cords, ropes or bands, Jewsbury, 821.
Forming and covering cores for long lengths, Binns, 1037.
Serving or binding ropes and cables, Irvine, 1352.
Regulating coiling of, upon winding drums, Green, 1406.
Printing single strand twine or cord, Waithman, 1691.
Picking, carding, and spinning cordage, Latour, 1814.
Coupling or capping for metallic or other, Whittle, 2617.
Printing and finishing fancy twine or cord, Waithman, 3109.
Fastener for securing ends of, Kennedy, 3347.
Material for preserving cords, Masurier, 3634.
Oakum and fibre-picking machine, Barnett, 3651.
Nippers or stoppers for indicating strain on, Thompson, 3983.
Oakum-making apparatus, Jarvie & Miller, 4295.

**Roses for hose or tube nozzles.** *See* Pipes.

**Rossing bark.** *See* Bark.

**Roughing horses.** *See* Horse-shoes.

**Roving fibres.** *See* Spinning (twisting).

**Rowing boats.** *See* Propelling ships.

**Rowlocks.** *See* Ship and boat building.

**Rudders.** *See* Steering and guiding ships.

**Rugs:**
Fastening shoulder straps to strap handles, Evans, 552.
Travelling, made from a fabric & pulp, Turner & Wilson, 2166.
Ventilating water-proof knee or driving, Marshall, 3949.
Leather covered handles for rug straps, Myring, 4097.

**Rules.** *See* Mathematical instruments.

**Ruling machines:**
Feeding, ruling, and taking off mechanism, Dinsmore, 3707.
Attaching slide to pen carriage; feeding pens, Price, 4102.

**Rushes (dyeing).** *See* Dyeing.

## S.

**Saccharine solutions.** *See* Sugar.

**Sacks.** *See* Bags.

**Sad irons.** *See* Ironing.

**Saddle-boilers.** *See* Boilers (miscellaneous).

**Saddlery.** *See* Harness.

**Safes; strong rooms:**
Automatic fire extinguisher for, Blain, 278.
Fire and damp resisting strong rooms, Chambers, 682.
Automatic fire extinguisher for, Wallace & Tucker, 890.
Making iron, to resist wedges, &c., Niblett, 1254.
Compressing salts into slabs, &c. for fireproof, Hyatt, 1451.
Fire-proofing, Perceval, 1830.
Constructing burglar-proof, Niblett, 2501.
Sextuple locks for, Parkin, 2837.
Locks for, with timed movement, Brewer (*Hennessy*), 3078.
Portable fire-proof safes, Hosmer (*Shepard*), 3469.
General construction of "well," bankers, & other, Chatwood, [3626.
Locks for, and raising, lowering, and securing, Chatwood, 3626.
Protecting hoistway & stair case entrances of, Chatwood, 3626.
Locks for and fastening doors of, Chatwood, 3626.
Ventilating and lighting, Chatwood, 3626.
Doors and bolts for, White, 3690.
Fire and burglar-proof safes, &c., Neumann, 4018.
For containing and protecting gunpowder, Roby, 4516.

**Sails, sail hanks.** *See* Ships' rigging.

**Salad-dressing.** *See* Preserving food.

**Salt:**
Furnace and apparatus for making, Milburn & Jackson, 518.
Heating salt pans by waste gases, Lockey, 1159.
Making perforated blocks of, for sulphate of soda, &c., Brock, [1502.
Protecting bars in salt pan furnaces, Newbold, 1698.
Preparing, for making sulphate of soda, Stevenson, 1723.
Tubular screw-apparatus for evaporating, Walker, 1886.
Treating, for making salt cake, &c., Milburn & Jackson, 1917.
Heating and working evaporating pans, Bull, 2061.
Arranging furnaces & kiln for heating salt pans, Lockey, 2882.
Pans and producing vacuum in and packing same, Maw, 3899.
Alloys for use in and for evaporating, Lake (*Holden*), 3783.
Heating, arranging, and working salt pans, Bull, 4200.
Pans for concentrating saline solutions, Prentice, 4391.

**Salt-cake.** *See* Alkalies.

**Salt-cellars and condiment receptacles:**
Constructing; implement for serving, Emanuel, 1289.

**Samples:**
Boxes for carrying liquids in bottles, Chevallier, 1520.
Stands or cases for, for counters and other places, Ross, 4087.

**Sand-blast (engraving by).** *See* Engraving.

**Sash-fasteners.** *See* Windows.

**Satchels.** *See* Bags.

**Satining or waxing paper.** *See* Paper (making).

Saucepans. *See* Cooking.

Saucers and cups. *See* Drinking vessels.

Saving life at sea. *See* Life-boats. Life-buoys. Rafts.

Sawing. *See* Cutting.

Saws:
For cutting coal, sawing stone, &c., Payton & Holmes, 343.
Frame saws, and tightening same, Newton, 624.
Circular and band saw benches or machines, Reynolds, 709.
Frames and handles of frame saws, Newton, 2356.
Adjustable covers for fret-cutting, Slater, 3391.
Tempering & straightening, Lake (*Simonds*), 3529.
Mounting and actuating circular, Johnson (*Blake*), 3678.
Frame saws, handles for holding and stretching, Newton, 4027.

Scaffolding. *See* Buildings.

Scales (hammer or mill). *See* Metal-waste.

Scales or rules. *See* Mathematical instruments.

Scales (weighing). *See* Weighing-machines.

Scarves. *See* Neckties.

Scenic effects (producing). *See* Optical.

Scents; perfumes:
Cap or stopper mounts for scent bottles, Plessner, 2534.
Distilling aromatic liquors, Dudgeon, 3037.
Perfume vaporiser, Clark (*Jouret*), 4461.

School desks and seats. *See* Furniture.

Scissors. *See* Shears.

Scoops, shovels, and spades. *See* Spades.

Scoria (utilising). *See* Slag.

Scoring or marking games. *See* Registering.

Scouring fabrics, fibres, &c. *See* Washing.

Scouring grain and seeds. *See* Grain, &c. (treating).

Scouring hides and skins. *See* Leather.

Scrapers:
Attaching blades and handles of ships', Lee, 991.
Attaching, to handles, Mylchroest, 2082.
For cleaning tubes or flues, Mayston, 2745.

Scrap-iron. *See* Metal-waste.

Screens:
Lattice framework covering for, Rideal, 113.
Making ornamental fire-screens, D'Humy, 1710.
Decorating or ornamenting fire-screens, Cadman, 2590.
Mounting, suspending, and manœuvring, Slater, 3391.
Ornamental framework for, Dodman, 4099.

Screw-drivers:
For use without loosing handle, Wolverson, 763.
For screws with recessed heads, Steers, 1326.
For screws with cavities and slots, Tongue (*Cummings*), 1476.
For recessed screws, Lake (*Sloan*), 1849.
Tool holder for, Soul (*Ascough*), 2962.
For screws with holes and slits, Knell, 3825.
With clips and flat circular ends having ribs, &c., Knell, 4518.

Screw-gills. *See* Spinning (carding).

Screw-jacks. *See* Hoists.

Screw-passers. *See* Gimlets.

Screw-propellers for ships. *See* Propelling ships.

Screws; screw-stocks and dies; cutting screws:
Reamer for cutting spiral threads, Mills (*Siprell*), 246.
Feeding blanks for turning, worming or nicking, Rogers, 300.
Tapping screw threads into washers, &c., Taylor, 321.
Stocks and dies for cutting, Neil, 402.
Forming heads of machine screws, Spencer, 893.
Stocks and dies, Gibson & Towell, 905.
Self-acting feed-motion for tap wrenches, Bowker, 958.
Lathes for screw-cutting, Low, 993.
Lathes for screw-cutting, Beverley, 1045.
Screwing & tapping screws, bolts, nuts, tubes, &c., Heap, 1137.
With recessed heads instead of nicks, Steers, 1326.
Threading screw-bolts and tapping nuts, Walton, 1388.
Shaping heads and sides of, Conradi (*Sack*), 1469.

Screws; screw-stocks and dies, &c.—cont.
With cavities and cavity and slot, Tongue (*Cummings*), 1476.
Forming, with recessed heads, Wells (*Johnson*), 1754.
Instrument for extracting, Elliott (*Conserve*), 1773.
Machine for heading set screws, Davies, 1786.
Screw-cutting lathes, Muir, 1801.
Forming, for wood, with recessed heads, Lake (*Sloan*), 1849.
Cutting and screw threading pipes, &c., Gee (*Allin*), 1973.
Tapping nuts and pipe fittings, Gee (*Allin*), 1973.
Heading & recessing blanks; tools for same, Frearson, 2066.
Rest for screw-cutting lathes, New & others, 2301.
Shaping heads of; setting tools, Smith, 2353.
Nicking, turning, worming, & pointing, Lloyd & Rogers, 2519.
Supplying screw blanks to feeding rails, Lloyd & Rogers, 2519.
Cutting and chasing, Smith, 2546.
Screwing bolts, studs, and like articles, Smith, 2546.
Forging set screws, Davies & others, 2586.
Screw pins or spikes for railways, &c., Atkinson, 2733.
Lathes for, and cutting screw-taps, Imray (*Boyd*), 2737.
Screw-cutting or chasing apparatus, Bailey, 3347.
For railway rails and chairs; securing same, Newman, 3354.
Making & hardening screws, Johnson (*Barba*), 3415.
Casting axle-boxes or bushes with screw, Norfolk, 3574.
Screw nails, tacks, brads, and spikes, Hyatt & Hyatt, 3620.
With slits and hole in head to facilitate driving, Knell, 3825.
Grinding grooves of screw-taps, Handyside, 3865.
Double pointed quick threaded, for boots, &c., Angst, 3936.
Machine for tapping holes in screw-nuts, Whitley, 3942.
Fasteners resembling screws, Thwaites & Thompson, 4003.
Forming screw threads on bolts by rolling, Fairbairn, 4037.
Rolling right and left hand screws, Fairbairn, 4037.
Lathes for chasing or screw-cutting, Smith & Coventry, 4067.
Tapping holes in boiler shells for screw-stays, Allan, 4068.
Forming offsets on screws, Thompson (*Cazin*), 4246.

Screw-stocks. *See* Screws.

Scribing or marking wood. *See* Cutting.

Scudding hides and skins. *See* Leather.

Sculls and oars. *See* Propelling ships.

Sculpture:
Using dried spent tan for statuary, Murdoch (*Hossaij*), 1397.
Decorating busts and statuettes in pottery, Brock, 2363.
Moulds for casting statuettes, Haseltine (*Grasser*), 2467.
Conformator for reproducing statuary, Clark (*Roudel*), 3962.

Scutching fibres. *See* Spinning (batting).

Seals for chains. *See* Jewellery.

Seals for letters and parcels:
Sealing wax in form of wafers, Kleinau (*Toysonniere*), 3946.

Sea-sickness (curing and preventing):
Constructing ships with floating saloons, Crawley, 517.
Chairs and other furniture for, Wirth (*Wertheim*), 637.
Ships with several hulls for, Woolcott, 1775.
Forming equilibrated couches, berths, and beds, Mayer, 2362.
Suspending seats in vessels, Wise (*Belcollette*), 3754.
Suspending cabins in vessels, Brown, 3898.

Seats. *See* Furniture.

Sea-walls. *See* Breakwaters.

Sea-weed; sea-wrack:
Using, in making soaps, Green, 129.
Using kelp in making bichromate of potash, &c., Heinzerling, [2008.
Distilling sea-wrack, &c., Dufrené (*Glaizot frères*), 2318.
Paste for bleaching, Clark (*Coissin-Bordat*), 2918.
Treating varec for iodo-bromides, Alexander (*Herland*), 2951.
Using, in making soaps, Green, 3891.
Making kelp; apparatus for same, Perrier (*Pellieux & Masi-[Launay*), 4092.

Secret correspondence. *See* Cryptographs.

Seed-drills. *See* Sowing.

Seed-pans. *See* Flower-pots.

Seeds and grain (treating). *See* Grain, &c. (treating).

Seeds (grinding). *See* Grinding corn.

Seeds (obtaining oils from). *See* Oils (vegetable).

Seeds (putting up for sale). *See* Packing.

Semaphores. *See* Signals.

Separating and sorting. *See* Sifting.

**Serving telegraph cables.** *See* Coating metals.

**Servo-motors.** *See* Governors.

**Sewage (treating).** *See* Manure.

**Sewers.** *See* Drains.

**Sewing; embroidering; sewing-machines:**

For producing French vein & fancy work, Beattie & Blair, 13.
Presser foot, take-up, feed and loop catch, Smith, 121.
Shuttles and their carriages, Smith, 121.
Winding cops for, and shuttles for same, Reid, 166.
Endless bands for driving, Ramsden, 221.
Loop expanding mechanism, shuttles for same, Moreau, 228.
Operating spiral needles in sewing bags, &c., Garland, 229.
Overseam, button-hole, & fancy work, &c., Vosper & Rogers, 251.
Stand for heavy goods; link-motion, Vosper & Rogers, 251.
Preventing, turning wrong way, Vosper & Rogers, 251.
Cams for actuating needle-bar, &c., Vosper & Rogers, 251.
Embroidering-machines, Leach & Webb, 257.
Edging, embroidering, and braiding, Gedge (*Cornely*), 306.
For closing glove fingers or tubular articles, Douglas, 348.
Regulating length of stitches, Shepherd & others, 350.
Hingeing bed-plates of, to stand, Shepherd & others, 350.
Shuttle pickers, Shepherd & others, 350.
Winding reels without turning machine, Clements, 367.
Joining, making, and ornamenting stands for, Clements, 367.
Driving & controlling when in motion, Clements, 367.
Plait folder, work holder, & silent feed, Clements, 367.
Friller, band check, and treadle; embroidering, Clements, 367.
Device for marking, &c. goods for quilting, Cramp, 374.
For looped pile embroidery, Hutchinson & Humphries, 397.
Regulating and governing motion of, Dennis, 413.
Shuttle thread regulator; tension apparatus, Reeves, 424.
Carrier and race for revolving the shuttle, Reeves, 424.
Operating needle and feed dog or plate, Reeves, 424.
Using shuttle carrier as balance or fly wheel, Reeves, 424.
Driving or working, Tatum & Roberts, 443.
For straw hats and bonnets, &c., Clark (*Legat*), 463.
Single thread lock-stitch, Clark (*Legat*), 463.
Device for curving straw plait in, Clark (*Legat*), 463.
Guide or automatic pantograph for, Clark (*Legat*), 463.
Forming scissors with hooks for use with, Daw, 496.
Obtaining a feed in every direction in, Petit, 501.
Embroidering-machines, Petit, 501.
Treadle apparatus for operating, Clark (*Dows*), 544.
Automatic adjustable embroidery designer, Smith, 634.
Adjustable guide for embroidery designers, Smith, 634.
Presser foot, take-up, feed and loop catch, Smith, 634.
Shuttles and their carriages, Smith, 634.
Winding spools without turning machine, Warwick, 710.
Preventing driving in wrong direction, Warwick, 710.
Dispensing with brush in spool machines, McGrah, 822.
Presser foot, & avoiding dead centres in driving, McGrah, 822.
Winding spools without operating machine, Watson, 857.
General construction of shuttle machines, Blake & Moss, 883.
Shuttles; shuttle reels and winding same, Blake & Moss, 883.
For edge sewing and button-holes, Reimann, 997.
Winding bobbins for, Tasker (*Cook & others*), 1043.
Terry loop embroidery, Steiger (*Schirmer & Blau*), 1048.
Machine for sewing & seaming hosiery, Lake (*Pearson*), 1050.
Shuttle driver & take-up mechanism, Gardner (*Wanzer*), 1102.
Recessed, &c. tables for, Brewer (*Draper*), 1122.
Stamping out of sheet metal various parts of, Taylor, 1156.
Needle, presser, and feed slide and actuating same, Taylor, 1156.
Actuating looper, &c., feed for herring boneing, Turner, 1268.
Tightening wheels & preventing noise; needles, Turner, 1268.
Revolving hook, Murdoch (*Follett*), 1357.
Variable feed for boot machines, Greenwood & others, 1378.
Filling and quilting fabrics, Ritchie & Ritchie, 1422.
Using cork, hops, bran, &c. in quilting, Ritchie & Ritchie, 1422.
Embroidering and braiding mechanism, Newton (*West*), 1456.
Compressing yarn in cops, &c. for sewing-machines, Cox, 1465.
Using thread in cops, balls, &c. for feeding needle, Reid, 1500.
Reel for supplying needle thread in hanks to, Reid, 1500.
Tension or "kink" removing spring for, Reid, 1500.
Feed presser & driving mechanism, Harrison & Mabson, 1575.
Embroidery & various attachments, Harrison & Mabson, 1575.
Tables, castors, steady pin and oiler, Harrison & Mabson, 1575.
Rectilinear, for selvages of stockings, &c., Guivet, 1579.
Quilting-machines; feed motion for same, Oram, 1582.
Shank for machine needles, Heath, 1586.
Mounting driving wheels; spooling gear & feed, Wilson, 1610.
Preventing turning in wrong direction, Wilson, 1610.
Hooks for boot sewing-machines, Keats & Greenwood, 1703.
Needle-arm, looping hook, and treadles, Clements, 1715.
Cases, &c. for shuttle cops to avoid rewinding, Pickard, 1842.
Feed-mechanism, presser bar and needle-bar, Weir, 1871.
Combined, presser, corder & gatherer, Lake (*Thompson*), 1896.
Composition for lubricating, Wilkins, 2012.
Reciprocating fluid engine for driving, Edwards, 2013.
Electro magnetic engine for driving, Clark (*Hussey*), 2043.
Electro-motor for operating, Nelson & Anderson (*Paine & Paine*), 2049.
Turning off, seaming, and stitching machines, Campion, 2113.

**Sewing; embroidering; sewing-machines—*cont.***

Loop take-up and thread guide for waxed thread, Ashe, 2204.
Oiling, &c. shuttles; carriers for waxed thread, Ashe, 2204.
Pattern or guide for embroidering skirts, &c., Rodger, 2214.
Embroidering-machines; shuttle and carrier, Viéville, 2231.
Spiral needle machine for, sacks, carpets, &c., Garland, 2248.
Rotating hook machines, Newton (*Folk*), 2352.
Hook, loop, feed, spool, & take-up devices, Newton (*Folk*), 2352.
Actuating needle bar shaft, Newton, (*Folk*), 2352.
For straw hats, bonnets, gloves, &c., Bland, 2368.
Feed, presser foot, and accessories and guides for, Bland, 2368.
For button-hole work, &c., Jensen (*Kallmeyer & Schmidt*), 2457.
For overhead and button-hole sewing, quilting, and embroidering, Hughes, 2466.
Working needles, feed, and spooler; ring and wavy shaped needles, Hughes, 2466.
Producing fabrics by interlocking of thread, Hughes, 2466.
Pattern device for embroidering, Hughes, 2466.
With revolving shuttle for gloves, Gray (*Jelstrup*), 2502.
Arrangement of friction gear for driving; break, West, 2511.
Shuttles, Spence (*Walker*), 2526.
For overseam or overhand stitching, Boone & Detrick, 2553.
Imitating India embroidery or needle-work, Cadman, 2580.
Winders; securing shuttles in seat, Bradbury & Lomax, 2592.
Water-wheel for driving, Lake (*Lane*), 2615.
Starting and stopping mechanism for, Lake (*Lane*), 2615.
Winding spools without working machine, Sellers, 2865.
Cutting, punching, and stamping attachments, Searle & Cook, 2886.
Oil-can, needle-case, and wheel shaft, Bishop (*Bishop*), 2920.
Overhead machine for bags, &c., Young, 2944.
For making button-holes in linen, &c., Patterson, 3021.
Needles with points tapered on one side only, Elliott, 3077.
For straw-plait, trimmings, &c., Heinrichs (*Schwalbe*), 3145.
Elastic transmitters for, Heinrichs (*Schwalbe*), 3145.
Plaiting or folding mechanism, Wise (*Bauer*), 3195.
Plaiting or folding mechanism, Wise (*Bauer*), 3207.
Feed mechanism & working same, Lake (*Cushman & Stoops*) 3208.
Fixing, &c. sewing-machines in boxes or cases, Turner, 3222.
Motive-power for driving, Colborne & St. George, 3239.
Shuttle tension for, Shepherd & others, 3268.
Boot and shoe sewing-machine, Johnson (*Goodyear*), 3280.
Stitching books, &c. with wire, Tongue (*Thompson*), 3291.
Feeding mechanism, Tongue (*Thompson*), 3291.
Winding spools and threading shuttles, McGrah, 3330.
Adjustable covers for sewing-machines, Slater, 3391.
Electro-motor for driving, Johnson (*Camacho*), 3416.
Shuttle spring guards & thread slots, Bradbury & Lomax, 3452.
Actuating needle bar & feed; holding shuttle, Hillman, 3462.
Needles; securing same in needle bar, Turner, 3507.
Shuttles; working feed, needle-bar and presser, Blake & Moss, 3520.
Wheels and feet for, & winding shuttle bobbins, Blake & Moss, 3520.
Preventing reverse driving, Blacklock & Appleford, 3546.
Button holeing or overseaming mechanism for, Hubbard, 3597.
Combined davenport & sewing-machine covers, Hubbard, 3597.
Shuttle spring guards & thread slots, Bradbury & Lomax, 3653.
Needle hole plate of machines, Bradbury & Lomax, 3653.
Needles for and fixing same in needle-bars, Perkins, 3663.
Wheel feed action of, Elliott, 3674.
Template for use in sewing covers or wrappers, Smieton, 3684.
Spools and ready filled spools for, Spurin (*Thowless*), 3695.
Applying lamps to, Willson, 3724.
Treadle action for, Steele & Cocks, 3735.
Duplex shuttle machine for heavy work, Coignard, 3767.
Automatic feed for heavy work, Coignard, 3767.
Needle and needle-bar; adjusting same, Mothersill, 3769.
Spring motor, treadles and break for, Lake (*Manson*), 3869.
Feed regulating screw; regulating speed, Cocking, 3874.
Needle-bar; lifting shuttle; shuttle race, Cocking, 3874.
For uniting piece goods, Morgan-Brown (*Dinsmore*), 3896.
Lock fast and self-setting needles, Bartleet & Johnson, 4046.
Pleating attachment, Smith, 4063.
Rotary spool machine for gloves; thread-catcher, Morgan-Brown (*Guldbrandsen & Rettinger*), 4123.
Bag or overhand machine; needle for same, Webster, 4146.
Driving mechanism; tightener and break for same, Clark (*Febvre & others*), 4147.
Feeding embroidering-machines, McGeorge, 4181.
Threaders for needles, shuttles, and other parts of, Kay, 4238.
Boot and shoe sewing-machine; needles for same, Mills, 4279.
Automatic apparatus for producing designs, Howie, 4300.
Needles for, to facilitate adjustment, Allwood, 4339.
Gas-engine for driving, Alexander (*De Bisschop*), 4342.
Shuttle with hinged cover and tension spring, Anderson, 4353.
Tension mechanism for shuttle machines, Browning, 4387.
Feed and presser mechanism for, Keith, 4556.
For plain, button-hole, and embroidery stitching, Keith, 4556.

**Sextants; quadrants:**

Instruments for use as sextants, Lasett, 523.
Combined instrument with quadrant, &c. (The "Mensor"), Henderson, 4063.

**Shackles.** *See* Links.

**Shafts and shafting for machinery:**

Bearings for upright or vertical, Collingwood, 70.
Lubricating apparatus for, Joyes & Turner, 205.
Coupling for securing portions of and repairing, Varley, 276.
Turning crank necks or sweeps of loom shafts, Haggas, 285.
Couplings for repairing propeller shafts, Varley, 303.
Couplings for repairing, in rolling mills, &c., Turner, 426.
Making cranked shafts by bending, Clarke, 854.
Oiling revolving, Somerset & Hayes, 1020.
Self-lubricating bearings for, Newton (*Murfey*), 1025.
Casting iron sleeves on to wrought iron, Chalk & Chalk, 1583.
Turning and grinding or finishing, Handyside, 1702.
Applying tension to bands, &c. for driving, Finlayson, 1819.
Lathes for turning shafting, Burlock (*Wood*), 1914.
Lathes for turning cylindrical, New & others, 2301.
Constructing built-up, Reynolds, 2323.
Constructing built-up and coupling cranked, Reynolds, 2399.
Journal lubricator for shafting, Burnett & Hornsby, 2611.
Stop mechanism for, of light machinery, Lake (*Lane*), 2615.
Bearing journals of, Jones, 2922.
Cone-shaped, for sewing-machines, Bishop (*Bishop*), 2920.
Bearings for, Clark (*Lathrop Antifrictionate Co.*), 3148.
Hollow, filled with water, Chapman (*Livermore*), 3403.
Bearing feelers for shafts of screw steamers, Alley, 3413.
Bearings for centrifugal-machines, Rammell, 3537.
Applying steel bands to crank sweeps of loom, Butterworth & others, 3368.
Roller bearing for, Hoadley, 4124.
Raw hide bearings or linings for journal-boxes, Lake (*Hathaway & others*), 4456.
Device for lifting vertical, for oiling same, Walker, 4477.

**Shafts for use in raising ships.** *See* Ships (raising).

**Shafts (indicating speed of).** *See* Indicating.

**Shafts or pits (sinking).** *See* Mining.

**Sharpening.** *See* Grinding and sharpening.

**Shaving.** *See* Hair-dressing.

**Shawing or topping roots.** *See* Tilling.

**Shawls; cloaks; wrappers:**

Fastening shoulder straps to strap handles, Evans, 552.
Ornamenting cloaks and wrappers, Lamprell, 1873.
Reversible cloak with fixed cape, Roger, 3106.
Weaving Paisley shawls, Strachan, 3609.
Convertible garment for ladies, Moschcowitz, 3821.

**Shearing metals.** *See* Cutting metals.

**Shears; clippers; scissors; shearing, &c. animals:**

Holding and shearing sheep, Chaquette, 416.
Operating ordinary sheep-shears, Chaquette, 416.
Cutting or clipping horses and other animals, Adie, 421.
Sheep shears, Puente, 436.
Forming hooks on scissor blades, Daw, 496.
Cutting, shearing or shaving sheep, &c., Flower, 1101.
Working shears, &c. by compressed air, &c., Flower, 1101.
Clipping or shearing sheep, horses, &c., Wolseley, 1206.
Clipping horses and short haired animals, Shelley, 1379.
Scissors and shears sharpener, Holding, 1446.
Sheep shears, Longden, 1452.
Clipping & shearing horses, sheep, &c., Simons & Martin, 1555.
Clipping or shearing horses, &c., Laloy, 2068.
Single and double acting clippers, Phipps & Burman, 2216.
Frame or cradle for use in shearing sheep, Turquand, 2233.
Horse clippers, and oiling rubbing parts of same, Adie, 2640.
Instrument for clipping or shearing hair, Courtois, 3383.
Clipping or shearing apparatus; actuating same, Martin, 4382.

**Sheathing ships.** *See* Ships' bottoms (coating, &c.).

**Sheaves.** *See* Pulleys.

**Sheds or tents.** *See* Tents.

**Sheep-shears.** *See* Shears.

**Sheer-legs.** *See* Hoists.

**Shell-fish crackers.** *See* Lobster crackers.

**Shells and other projectiles.** *See* Shot.

**Shells (tortoise and turtle):**

Applying xyloidine in making imitation, Spill, 1739.

**Shelves:**

Lattice framework covering for, Rideal, 113.
Studs, &c. for fixing and adjusting, Ker, 1964.
Combining book, with furniture, Woldhen (*Barnes*), 2006.

**Shields:**

Mattress for protecting troops when landing, Cornish (*Cornish*), 577.
Using cloaks in sacks as breast, for soldiers, Huch, 2463.
Portable folding steel plate, Séchea, 2536.
Belts, breast-plates, and waistcoats forming, Séchea, 2536.
Protecting armour plates of, Longsdon (*Krupp*), 2796.
For portable field batteries, Franzini, 2831.
For heavy ordnance, Longsdon (*Krupp*), 3132.

**Shingling metals.** *See* Forging.

**Ship and boat building, launching, furnishing, &c.:**

Material or paper-felt for, Gandy, 52.
Drying double bottoms of iron ships, Baker, 96.
Life-boats, Atkin, 92.
Rivetting ships' sides, Nussey & Leachman, 139.
Life-boats, Humble, 149.
Fitting ships to protect them against fire, Chatwood, 155.
Portable drilling apparatus for use in, Enoch, 190.
Rendering contents of ships incombustible, Weare, 252.
Internal floating "duck" or vessel, Fewster, 298.
Launching boats or vessels from land, Share & Calley, 377.
With removable life-saving poop or boat, Clark (*Malo*), 494.
Connecting pipes, cocks, & valves to bottoms, &c., Spence, 627.
Forming wells with floating saloons in, Crawley, 517.
With longitudinal and transverse divisions, Roberts, 555.
Arranging pipes for indicating leakage, &c., Roberts, 556.
Strengthening and rendering sides watertight, Roberts, 556.
Chairs, &c., to obviate sea-sickness, Wirth (*Wertheim*), 657.
Suspending berths, cots, cabins, &c. in equipoise, Chomel, 680.
Bed or couch for ships, Lake (*Dendy & Wilkin*), 843.
Combined bunk and life-preserving apparatus, Watts, 896.
Heat or pressure indicator and alarm for ships, Bagot, 946.
Life-preserver for ships to prevent collision, Owen, 960.
Fitting ships' cabins, Alexander (*Mann & Paterson*), 1617.
Floating saloons, cabins or compartments, Hiltbrunner, 1148.
Life-saving vessels; launching same, Stockwell, 1441.
Fitting show-cases or stands in, Collins & others, 1444.
Coating inside as protection from fire, &c., Dennieton, 1468.
Life-boats, Hodgson & Sweet, 1478.
Substitute for punts and boats, Pike, 1485.
Vessels for dredging, Woodford & Woodford, 1551.
Indicating level of water in ships' holds, Nicholas, 1569.
Life-boats, Colwell, 1708.
Barges for receiving and carrying sewage to sea, &c., Yule, 1758.
With several hulls, Woolcott, 1775.
With false deck to act as life-rafts, Machattie, 1792.
Picking, &c. cordage for calking ships, Latour, 1814.
Fire-proof ships, Perceval, 1836.
To prevent rolling, &c. ("Flying Prahu ship"), Monckton, 1854.
Out-riggers for attachment to vessels, &c., Monckton, 1854.
Balancing frames for ships' cabins, &c., Monckton, 1854.
Constructing internal fittings of, Nicoll, 1953.
Covering for sides of, to lessen concussion, Nicoll, 1963.
Suspending ships' cabins or saloons, Walker, 1959.
Supporting cabins, &c. in, to keep equilibrium, Anderson, 1982.
Deck and port lights; day-light reflectors for same, Hyatt, 2015.
Floating vehicles, Thellusson, 2066.
Balancing berth or sofa, Clark (*Von Auer & Coombs*), 2082.
Saloons with decks to dispense with cabins, Betteley, 2127.
Fastening planking; arranging buffers, Betteley, 2127.
Forming life or bridge boats of iron and steel, Betteley, 2127.
Duplex life-boats, Anderson & Burkinshaw, 2165.
Forming equilibrated couches, berths, and beds, Mayer, 2206.
Life-boats, Brown, 2249.
Suspending berths, &c. in, Morgan-Brown (*Ford & Dick*), 2261.
Hinging rowlocks in ships' boats, Lake (*Thomson*), 2340.
Blocks of toughened glass for decks, Hyatt, 2359.
Boats in a tapering form for smooth water, Jobert, 2408.
Hulls to facilitate steering and turning, &c., Bénic, 2408.
Rain-screen and sun-shade for port scuttles, Allardyce, 2417.
Portions of the upper parts of hulls, Potter, 2429.
Securing and launching life-rafts or deck-houses, Jolley, 2461.
Life-boats; using rafts as poop seats, &c., Atkin, 2488.
Indicating level of water in ships' holds, Nicholas, 2532.
To skim over the water ("The Skimmer"), Novello, 2624.
Double-bedded sofas or seats for cabins, Schoubersky, 2648.
Refrigerator for preserving food, &c. on board, Foster, 2662.
Protecting armour plates of ships, Longsdon (*Krupp*), 2796.
Boats, to increase buoyancy, Limouzin, 2830.
Gauge for measuring thickness of plates, 2824.
Life-boats, launches and other tendering craft, Henley, 2967.
Hulls of iron ships; method of calking, Clark (*Powell*), 2987.
Lessening rolling motion of iron vessels, Clark (*Powell*), 2987.
For carrying grain and shifting cargoes, McMillan, 3067.
Hulls with fixed longitudinal bulkheads, McMillan, 3067.
Preventing fires on board coal vessels, &c., Cargill, 3152.
Self-sealing side lights, Soley (*Collinson*), 3268.
Strainers for apertures in ships' sides, Dunstan, 3273.
Brushes for cleaning decks and sides of ships, Barker, 3320.
Illuminating ornamental gratings for parts of, Hyatt, 3337.
To float above water ("aërial vessel"), Henderson (*Picard & Laurent*), 3369.
Refrigerating structure for vessels, Allegretti, 3377.

**Ship and boat building, &c.—*cont.***

Coverings or awnings for boats, Slater, 3391.
Bolts for securing armour plates, Johnson (*Barba*), 3415.
Preventing vessels foundering or sinking, Davenport, 3423.
Repairing, restoring, & examining sides & bottoms, Aston, 3428.
Buffers for steam and other vessels, Smith & others, 3429.
Indicating depth of water in ships' holds, Kennedy, 3540.
Preventing vessels from sinking, Couchman, 3548.
Making ships air and water tight, Job, 3610.
Preventing vessels being consumed by fire, Job, 3610.
Preventing vessels sinking after being wrecked, Job, 3610.
Screw-spike for ship-work, Hyatt & Hyatt, 3650.
Machine for painting ships, Paget, 3661.
Automatic or folding seats for decks, Smith, 3726.
Suspending seats in vessels, Wise (*Belvallette*), 3754.
Hydrometer ship for use in raising vessels, Fryer, 3816.
Suspending cabins to prevent sickness, Brown, 3898.
Skeleton boats for floating granaries, Inglis (*Inglis*), 3965.
General construction of iron plated hulls, Betteley, 3997.
Metallic life and other boats, Betteley, 3997.
Strengthening and providing stowage space, Griffiths, 4002.
Strengthening, &c. war vessels or rams, Griffiths, 4002.
Life-saving raft-boats, Dunn, 4006.
Portable ambulance for use as a sea-bed, McLean, 4034.
Deck & port-lights, & glass for, & securing same, Hyatt, 4063.
Substitute for iron plates, Baggeley, 4067.
Defensive armour for ships of war, &c., Brookes, 4070.
Life-boats, to prevent capsizing, Cunningham, 4143.
Table with rocking leaves, Broadbridge (*Andrews*), 4183.
Lining ships to carry grain, prevent sinking, Buckler, 4239.
Compound for backing iron plates, Wilkinson, 4267.
With a "launching quarter ship," Campbell & Ballardie, 4365.
Double ships for conveying cattle, &c., Egerton, 4549.

**Ships' boats (raising, lowering, and disengaging):**

Releasing lashings of, Lester & Hallett, 36.
Lowering and launching, Atkin, 93.
Lowering, disconnecting, and hoisting, Stokes, 143.
Launching, Thompson, 180.
Davits for raising, securing, and lowering, Share & Calley, 377.
Mounting davits; stowing and lowering, Clark & Hill, 907.
Raising and lowering, Percy, 1802.
Crutches for stowing; sliding davits, Fogaty & Jewell, 2141.
Securing to and releasing from tackles, Fogaty & Jewell, 2141.
Lowering and launching, Atkin, 2485.
Lowering and detaching, Alexander (*Ferguson*), 3390.
Davits, Graham & Allardyce, 3588.
Self-releasing apparatus for, Leeman, 3852.
Lowering, detaching, and hoisting, Richmond, 3893.
Stowing and launching, Griffiths, 4002.
Disengaging hooks for, & apparatus for suspending, King, 4056.
Self-releasing apparatus for, Leeman, 4145.

**Ships' bottoms (cleaning):**

Rotary brush apparatus for, Earl of Caithness, 703.
And removing fouling deposits, Aston, 3428.

**Ships' bottoms (coating, preserving, & sheathing):**

Protective coating for, Thomson, 1373.
Compound for preserving and protecting, Denniston, 1466.
Carbon compound ("nicolline") for coating, Nicoll, 1933.
Sheathing iron ships and other vessels, Muntz, 2700.
Composition for protecting, Johnson (*Heyl*), 2972.
System of, Clark (*Powell*). 2997.
Anti-fouling insulating adhesive compound, Thomson & Con-[nolly, 3138.
Protective coating or composition, Gaine & others, 3313.
Preventing growth of plants & molluscs, Gaine & others, 3313.
Galvanic sheathing for, Betteley, 3997.
Treating intestines, &c. of animals for, Macintosh, 4031.
Anti-fouling compound or composition, Martin, 4066.

**Ships' cargoes (loading, unloading, and preserv-[ing; raising salvage):**

Waggons & boxes for shipping coal, minerals, &c., Connell, 303.
Raising and tipping coal trucks, &c., Marillier, 497.
Conveying bulk cargo to warehouses, &c., Goodwin, 559.
Excavator apparatus applicable to, Deas & Nairn, 1693.
Cowls for drawing off dust in, Wawn & Willcox, 2340.
Electric submerged lamp for use in, Chauvin & others, 2410.
Grain elevator for discharging vessels, Mills, 2503.
Cramp for use in securing, Matthews, 2956.
Overhead apparatus for merchandise, Wrigley, 3283.
Preserving, from heating and sweating, McMinn, 3457.
Preserving, &c. carcases of animals on board ship, Knott, 3505.
Elevators for cargoes of coal, grain, &c., Lake (*Brown*), 3611
Raising, tipping, and lowering coal, &c. trucks, Thomson, 4522.

**Ships' compasses.** *See* Compasses (magnetic).

**Ships (extinguishing fire in).** *See* Fire-engines.

**Ships (heating or warming).** *See* Heating.

**Ships' logs:**

Tubular logs and appliances for same, Reynolds, 319.
Permanent automatic electric log, Hargreaves, 353.
To replace the reel log, Russell, 2619.
Arranging and working log reels, Pearce, 2782.
Machine for recording speed, Barlow, 2948.
Applying electricity to, Pastorelli, 3706.

**Ships' masts:**

Hollow steel, for ventilating life-boats, Clark (*Malo*), 404.

**Ships (propelling).** *See* Propelling ships.

**Ships (raising out of water):**

Floating docks or pontoons for, Clark & Standfield, 514.
Floating or pontoon docks for, Koning, 1413.
Floating dock for, Wilson (*Tideman*), 1796.

**Ships (raising sunken or wrecked):**

Pontoons for, Hodgson & Sweet, 1478.
By buoys or hollow vessels sunk and floated, Thomas, 3182.
By air chambers or casings, Gillett, 3210.
By displacement of water in, by air or gas, Bland (*Bland*), 3406.
By hydrogen gas generated by same, Bradshaw, 3410.
By the displacement of water by gas, air, &c., Davenport, 3423.
Grippers, bridge, and pontoon apparatus for, Parlour, 3445.
Water-tight telescopic shafts for, Parlour, 3445.
By air-bags inflated in same, Heronimos, 3491.
By air-tight cylinders and chambers, Hemsted, 3514.
By air-bags inflated in same, Couchman, 3548.
Various methods of, Dillon, 3550.
By means of air-bags, Job, 3610.
Vessel or "hydrometer ship" for use in, Fryer, 3816.
Sucker attachment for use in, Fryer, 3816.
Hulls with water-tight compartments for, Rutherford, 4551.

**Ships' rigging and sails:**

Sewing-machine for making sails, Vosper & Rogers, 251.
Preserving sails from decay, Clark (*Rogé & others*), 288.
Snap hooks for, Johnson (*Nye*), 766.
Hank or shackle for, Ramsay (*Low*), 1956.
Iron dead eyes and steel wire lanyards for, Bullivant, 2098.
Making shrouds of wire ropes or steel wire, Bullivant, 2098.
Fore and aft sails usable as triangular sails, Da Silva, 2525.
Gaff hoop or "panella," Da Silva, 2525.
Clip sail hank in two parts, Jones (*Clements*), 2548.
Overseam sewing-machine for sails, Boone & Detrick, 2553.
Sail hank, Méhu, 3502.
Duplex shuttle machine for sewing sails, Coignard, 3767.

**Ships' scrapers.** *See* Scrapers.

**Ships' signals.** *See* Signals.

**Ships (steering).** *See* Steering.

**Ships (stopping or covering holes, &c. in):**

Matting for covering holes in ships bottoms, Makaroff, 813.
Sheathing for, and apparatus for lowering same, Aston, 3428.
Water sails for and applying same, Laws, 3478.

**Ships (ventilating).** *See* Ventilating ships.

**Shirts:**

Wristband fastening, Pendleton, 337.
Fronts for, to obviate bulging and creasing, Burke, 3463.
Adjustable stand for holding and displaying, Wheeler, 4022.

**Shoeing horses.** *See* Horse-shoes.

**Shoes and boots.** *See* Boots.

**Shop-fittings.** *See* Counters.

**Short-hand.** *See* Stenography.

**Shot; shell; bullets; projectiles:**

Bullet patching machines, Newton (*Borchardt*), 385.
Shells or bursting shot, Broadwell, 2754.
For use in communicating with vessels, Rogers & Anderson, 2755.
Explosive bullets, shells, &c., Burton, 3069.
Darts for air-guns or pistols, Quackenbush, 3448.
Ball cartridge for shooting galleries and sporting purposes, [Clark (*Le Bert*), 3882.
Projectile for guns without barrels, Dawson, 4045.

**Shovels.** *See* Spades.

**Show-cards.** *See* Advertising.

**Show-cases, show-stands, &c.:**

For exhibiting articles or wares for sale, Hickisson, 557.
Compositions for making, Hickisson, 557.
Fitting stands or, in ships, Collins & others, 1444.
Frames for, of wood covered with metal, Larard, 3031.
Stands for holding and displaying shirts, &c., Wheeler, 4022.
For bottles, jars, samples, &c. and advertising, Ross, 4067.
Double spring hinges for doors of, Larard, 4221.
Opening and closing, Barnard, 4347.

**Shutters:**

Latch or fastening for, Browning, 23.
Opening and closing folding, Morgan-Brown (*Colaert*), 90.
Hanging, opening, closing, and securing sliding, Cole, 696.
For hearses, biers, pleasure vans, &c., Hatchard & Talbot, 1095.
Fitting and constructing revolving, Woodburne, 2752.
Shop window, with leaves in lieu of strips, Cummings, 3539.
Venetian and other, Lohnstein (*Collings*), 3716.
Fixing laths of window-blinds as secured, Hutchison, 4076.
Opening and closing sliding, Barnard, 4347.

**Shuttles.** *See* Sewing. Weaving.

**Sickles or brushing hooks.** *See* Plants.

**Sideboards.** *See* Furniture.

**Sieves.** *See* Sifting.

**Sifting; sorting; screening; riddling:**

Paper material for making sieves, Gandy, 52.
Screen or hot-air "occlusior" for hot-air stoves, Mackenzie, 93.
Separating reduced metals by winnowing, &c., Lyttle, 105.
Rotary screens and cleaners for same, Brinsmead, 119.
Magnetic sorting machines, Clark (*Lontin*), 473.
Riddling and screening coal, &c. in mines, Parker, 556.
Cleaning clover and other seeds, Catchpole & others, 612.
Dressing corn and seeds, Sainty, 708.
Riddling troughs for manure distributors, Jacob, 711.
Separating and washing ores, Hall, 731.
Bolting flour, Lake (*Martin*), 949.
Automatic cork assorting machine, Bussey, 1047.
Silk flour dressing reels, Thornton, 1076.
Screens for separating coffee berries, Lidgerwood, 1103.
Bolting or sifting flour, Henry (*Bouchotte*), 1145.
Combined ash-pan and sifter, Goldstein, 1261.
Middlings separator or purifier, Crabtree, 1304.
Aspiring flour sifting machine, Aubin, 1409.
Sifting cinders in furnaces, Newbold, 1698.
Magnets for brass and iron separators, Faulkner, 1800.
Constituents of maize, Clark (*Chiozza*), 2007.
Dressing corn and other grain, Leatherland, 2293.
Cinders, ashes, and other substances, Twist, 2337.
Screening turnips, mangel-wurzel, &c., Corbett, 2365.
Purifying and assorting middlings, Rose, 2506.
Grain, rice, or seed cleaner and separator, Rose, 2506.
Separating flour from "germ meal," Muir, 2560.
Centrifugal cinder and other sifters, Moody (*Sutton*), 2753.
Circumferential sifter for bolting flour, Miller, 2768.
Cleaning and assorting groats, Wirth (*Bühlmann*), 2811.
Cleaning and separating grain, Thompson & Lampitt, 2933.
Reels; dressing flour & middlings, Thompson & Lampitt, 2933.
Self-cleaning adjusting rotary screen, Brinsmead, 2952.
Dressing, sifting, and feeding middlings and meal, Smith, 3042.
Ash-pans with cinder-sifter for kitchens, Ezard, 3047.
Rotary screen with drum of triangular wire, Cousins, 3049.
Grain dressing screens or drums, Buchholz, 3107.
Fitting cinder-sifting trays beneath stoves, Curtze, 3147.
Ash-sifter for dry ash closets, Sedden & Ellis, 3327.
Cinder-sifter for kitchen and other ranges, Poupard, 3381.
Wiper wheels for working riddles or sieves, Norman, 3414.
Cleaning and dressing grain and seeds, Allin, 3481.
Bolting, &c. flour and middlings, Leicester & Blezard, 3518.
Pulverulent substances, Leicester & Blezard, 3518.
Reel or dressing machine for powdered coal, Ferry, 3714.
Sifting, sorting, or cleaning seeds, &c., Catchpole, 3744.
Ores, &c. in grinding, Morgan (*Sachsenberg & Brückner*), [3794.
Sorting or separating corks and cork squares, Howard, 3830.
Screening grain prior to grinding, Corbett, 4140.
Sifting cinders in dry-closets, Alcock, 4236.
Grain cleaning machines, Morgan-Brown (*Rose & Ross*), 4388.
Separating powdered ores by blasts of air, Parkinson, 4423.
Bolting flour and purifying middlings, Childs, 4465.
Separating flour from middlings or sharps, Pritt, 4489.
Cleansing and separating wheat or other grain, Pritt, 4489.
Self-clearing potato riddles and separators, Griffin, 4534.

**Sign, inscription, numerical, & other plates, &c.:**

Plates for shop fronts, numerical plates, Mallet, 144.
Personal badges or numbers; tables for fares, &c., Mallet, 144.
Forming name plates, Brown, 1275.
Sign or lamp for tobacconists' shops, Kinder & Kinder, 3252.
Printing and producing tablets, Manning, 3386.

**Signal-lamps and lanterns.** *See* Lamps.

**Signals; communicating apparatus (miscellaneous):**

High pressure steam alarm, Cave, 141.
Kite or aërial apparatus, Clark (*d'Esterno*), 169.
Electric signalling apparatus, Stockman, 255.
Water-level alarm for steam-boilers, Barlow (*Stratton*), 407.
Call or signal bell apparatus, Brooks, 476.
Electric alarm for jewellers' shops, Kitson, 855.
Heat or pressure indicator and alarm apparatus, Bagot, 945.
Speaking tubes, Reith, 983.
Electric alarm for steam superheaters, Dixwell, 1013.
Self-acting alarm for wet gas meters, Hill, 1040.
Water-level alarm for steam-boilers, Lake (*Sulzbach*), 1049.
Recording and alarm steam gauges, Haseltine (*Edison*), 1181.
Self-acting fire-alarm for buildings, Brough & Owens, 1205.
Sounding bells on dropping money in tills, Griffin, 1237.
Low-water alarm for steam-boilers, Kenyon, 1538.
Indicators for warping-machines, Ashworth & Ashworth, 1618.
Detecting fire in ships and buildings, Perceval, 1830.
Alarm, for combing-machines, Whitehead, 1991.
Bell pyrometer for evaporating pans, Bull, 2061.
Steam-boiler low-water alarm, Armengaud (*Cornevin*), 2123.
Combined door fastener, alarm, and call-bell, Bacon, 2269.
Captive machine or balloon for signalling, Simmons, 2428.
Pneumatic telegraphic, for hotels, &c., Lake (*Wippern*), 2509.
Air-gas apparatus, &c. for night use, Neuhaus (*Wiese*), 2517.
Pneumatic, Canning & Jool, 2518.
Indicating deficiency of steam in boilers, Birrell, 2604.
Low-water alarm for steam-boilers, Hallam & Lamb, 2607.
Signalling the rise and fall of tides, Morris & Hunter, 2632.
Low-water alarm for steam-boilers, Roberts, 2634.
Circuit closers for signalling, McEvoy, 2786.
Electric-light apparatus for, Johnson (*De Mersanne*), 2787.
Compound or mixture reed fog alarm, Holmes, 2806.
Low-water alarm for steam-boilers &c., Riley, 2854.
Acoustic telegraph, Benjumea, 2914.
Electric alarm for steam-engine cylinders, Dixwell, 2934.
Burglar alarm, Rowland, 3101.
Adapting whistles to water slide gasaliers, Carter, 3102.
Electric alarm for pressure gauges, Vaughan (*Neech*), 3341.
Alarm apparatus for prisons, Harris (*Cook & Heath*), 3375.
Indicators or alarms for "bearing feelers," Alley, 3413.
Fog horns and sirens for shore; working same, Holmes, 3426.
Magneto-electric apparatus for transmitting, Zanni, 3795.
Combined fog horn or trumpet and siren, Lake (*Brown*), 3861.
Automatic pneumatic signal buoy, Clark (*Courtenay*), 4148.
Piles or batteries for electric, Lake (*Van Tenac*), 4206.
Alarm apparatus or thief detector, Gedge (*Pérard*), 4214.
Signalling outbreak of fire in buildings, Hodson, 4240.
Alarm apparatus for boilers, Morgan (*Moskovits*), 4503.
Glass reflectors and lenses for, Bessemer, 4552.

**Signals; communicating apparatus (railway):**

Signalling to drivers the breaking of axles, &c., Millbourn, 7.
Constructing, arranging, and working electric, Sington, 57.
Electric fog bell, Sington, 57.
Giving notice to drivers to apply breaks, &c., Clark, 80.
Working audible signals in foggy weather, Jolley, 172.
Working distant, on pneumatic principle, Jolley, 172.
Self-acting block system, Gledhill & Gledhill, 179.
Locking and interlocking, Brierley & others, 201.
Giving alarm when carriages are off the line, &c., Savage, 271.
Calling attention of guard and others to danger, Boulton, 311.
Working "block" or "space" system, Harper, 336.
Producing fog and other, by means of "sirens," Wigham, 356.
Working station and distant, Cottrill, 414.
Self-acting block system, Cottrill, 414.
Actuating and locking signal levers, Webb, 462.
Communicating in trains by fog signals, &c., Perkins, 533.
In trains, by compressed air, Shone & Walker, 553.
In trains, by movable pendent rods, Stokes, 610.
Automatic audible alarm, Bairnsfather, 618.
In trains, by fog horns sounded by compressed air, Steel, 623.
Combined lock and block system, Sykes, 662.
Working electric signals, Sykes, 662.
Locking and interlocking levers, Smith, 819.
Giving signals to and from trains, Moscrop, 856.
In trains, by cords or chains, &c., Smith, 875.
Signalling condition of train breaks, Smith, 875.
System of giving distinguishing signals, Dutton, 936.
Working, acted upon by different signalmen, Dutton, 936.
Working double distant signals, Dutton, 936.
Working semaphores by pressure of gas in pipes, Bland, 978.
Automatic electric railway line, Haggard, 995.
Electric, between moving trains and stations, &c., Bondi, 1075.
Road apparatus for opening whistle, Crichton & Craig, 1096.
In trains, by circular rods, levers, &c., King, 1134.
Apparatus for working audible, on engines, Glossop, 1200.
Automatic electric line apparatus, Glossop, 1200.
In trains, by cylinder and piston apparatus, Clapp, 1221.
Signalling to driver accident to his train, Turner, 1263.
Electric, between moving trains and stations, &c., Wynne, 1493.
In trains, by automatic electric apparatus, Wynne, 1493.
Signal bars to compensate for expansion, &c., Wynne, 1493.

**Signals, &c. (railway)—*cont.***

In trains, Knoblauch (*Zimmermann & Knoblauch*), 1540.
Compensating for contraction, &c. of connecting wires, Knoblauch (*Zimmermann & Knoblauch*), 1541.
Between trains and stations by electricity, Vispé & Nisbeth (*Brunius*), 1666.
System of "overlapping signals," Mills (*Flad*), 1770.
In trains, by flags and coloured glasses, Johnson (*Rikli*), 1798.
Magnets for actuating semaphore, Faulkner, 1800.
Using signal rockets on carriages, Seymour, 1901.
Using break gear for signalling in trains, Bolitho, 1931.
Electric, between moving trains & stations, &c., Calvert, 2034.
Between guards in trains by electricity, Calvert, 2034.
Working and locking, Farvis, 2077.
Automatic electric & rocket, De Bejar y O'Lawlor & Calvo, 2101.
Between trains & stations, De Bejar y O'Lawlor & Calvo, 2101.
Maintaining tension of wires, Brierley & others, 2118.
Working, by breakage of wires, Brierley & others, 2118.
Working, between stations, &c. & trains, Moscrop & Gibbons, 2180.
Saving gas in lighting, &c. fog, distant, and main, Norton, 2243.
Working semaphore & other, pneumatically, Chambers, 2385.
In trains, by pneumatic apparatus, Westinghouse, 2405.
On trains, by vacuum or exhaust, Sanders, 2425.
In trains, by electricity, Stroudley & Rusbridge, 2434.
Breaking away of trains, Stroudley & Rusbridge, 2434.
Cord and bell apparatus for trains, Stroudley & Rusbridge, 2434.
Slip coupling for train, Stroudley & Rusbridge, 2434.
Laying down and taking up fog signals, Hinds & Nicoll, 2440.
On trains, by detonating signals, Hinds & Nicoll, 2440.
On trains, by fusee and bell apparatus, Gedge (*Le Brot*), 2472.
Air-gas apparatus, &c., for night use, Neuhaus (*Wiese*), 2517.
In or on trains, by trumpets, &c. Brewer (*Selten*), 2567.
In trains, by electricity, Roberts, 2635.
Signalling breaking away of trains, Roberts, 2635.
Circuit closers for operating, Clark (*Rousseau*), 2657.
Electric apparatus for operating, Clark (*Rousseau*), 2740.
Telegraphic signalling, Wheatstone, 2771.
Electric circuit closers for, McEvoy, 2786.
Electric-light apparatus for railways and trains, Johnson (*De Mersanne*), 2787.
Sounding whistle on putting on the breaks, Dawber, 2846.
In trains, by explosive compounds, Aird, 2848.
Actuating signals on trains by opening door, Pulbrook, 2910.
Gong or bell apparatus, for use on trains, Palmer, 3039.
In trains, by electric bells, Richardson & Moffatt, 3085.
Coupler for electric cables, Richardson & Moffatt, 3085.
In trains, by explosive charges or cartridges, Rowland, 3101.
Stationary, fog, and other, Rowland, 3101.
Throughout trains without coupling apparatus, Tyer, 3103.
Indicating breakage, &c. of air break tubes, Smith, 3125.
Arranging and connecting communication cords, Smith, 3125.
Electric-telegraph mechanism and connections for use on trains, Whyte, 3131.
Warning drivers when carriages separate, Whyte, 3131.
Depositing explosive signals on rails, Percy, 3214.
Pneumatic apparatus for use in trains, Siégris, 3232.
Working signals by pressure of gas in pipes, Bland, 3242.
Connecting passenger communicators, Temple, 3302.
Flag and alarm apparatus for use on trains, Stewart, 3309.
Road apparatus for opening whistle, &c., Weir & Morgan, 3321.
Electric, between trains & stations, &c., Gilbee (*Bondi*), 3335.
Cord communicator for trains, Law, 3356.
Locking relative signals of shunting points, Annett, 3427.
Allowing for variation in length of pull, Tyer, 3608.
Using break communications for telegraphing, Ward, 3617.
Laying and removing fog signals, Aird, 3649.
Cord communicator for trains, Law, 3683.
In trains, by electricity, Wood & Shakespear, 3772.
Electric apparatus for working block system, Zanni, 3795.
Producing audible, on trains, at signal box, &c., Nimmo, 3899.
Station and road apparatus, Smith (*Von Scheliha*), 4069.
Pneumatic apparatus for trains, Smeeton & Law, 4447.
Interlocking distant signals, Clark (*Rousseau*), 4517.

**Signals; communicating apparatus (ships'):**

Indicating course vessels are steering, Briebach, 313.
Producing fog and other, by means of "sirens," Wigham, 356.
Applying and igniting compositions, Johnson (*Lamarre*), 409.
For indicating course a vessel is steering, Harris, 1998.
Air-gas apparatus, &c. for night use, Neuhaus (*Wiese*), 2517.
Warning vessels of the depth of water reached, Cooper, 2622.
Using the commercial code by night, Kinnersley, 2747.
Shore apparatus and appliances for, Rogers & Anderson, 2755.
Signalling international code by night, Johnson (*De Mersanne*), 2787.
Producing regulation lights, Johnson (*De Mersanne*), 2787.
Fog horns and sirens for; working same, Holmes, 3426.
Pump for sounding whistles, fog horns, &c., McMinn, 3457.
Electric apparatus for transmitting, on board, Zanni, 3795.
Producing fog and other, by means of sirens, Wigham, 3854.

**Silicate cotton.** *See* Slag.

**Silk waste (utilising).** *See* Rags.

**Silver.** *See* Smelting.

**Silvering and gilding.** *See* Gilding.

**Singeing fabrics and yarns.** *See* Finishing.

**Sinking cylinders for excavating.** *See* Excavating.

**Sinking shafts.** *See* Mining.

**Sinking wells.** *See* Wells.

**Sinks; jaw-boxes; slop-stones; basins:**

Ventilating, Potts & Darnell, 272.
Stench traps for slop stones, Buckley & Stock, 378.
Fitting house, to conduct gases into open air, Snell, 1262.
Traps for, Middleton, 1506.
Ventilating slop-basins and jaw-boxes, Lanyon, 2715.
Stench traps for basins, sinks, &c., Lake (*Adee*), 3001.
Triplicate construction of jaw-boxes, Shanks, 3188.

**Siphons:**

For intermittent discharge of sewage tanks, &c., Field, 3747.
Siphon traps for sewage tanks, Field, 3747.

**Sirens.** *See* Signals.

**Size:**

Obtaining, from sludge, for use in paper-making, Mackay, 91.
For preventing mildew in cotton, &c., Lansdale, 1803.
For sizing, stiffening, and conditioning, Lansdale, 1803.
Substitute for, for sizing pulp, Clark (*Chiozza*), 2007.
Making "parementine," Barlow (*Torlotin*), 3015.

**Sizing and preparing yarns for weaving:**

Fans, cages or lath cylinders, and stop-motion, Lancaster, 250.
Boiling and circulating the size, &c., Lancaster, 250.
Fine and coarse counts together, Slater & others, 1035.
Size for conditioning cotton, &c., Lansdale, 1803.
Valves for steam drying cylinders used in, Fletcher, 2290.
In an extended state, Baerlein, 2866.
Making "parementine" for, Barlow (*Torlotin*), 3015.
Applying a small press roller, Porteous & Ormerod, 3166.
Combined process of sizing and dyeing yarns, Paton, 3979.
Reeds for dressing-machines, Gray, 4463.

**Sizing leather.** *See* Leather.

**Sizing paper.** *See* Paper-making.

**Sizing woven fabrics.** *See* Finishing.

**Skates and skating rinks.** *See* Games.

**Skewers for spinning frames.** *See* Spinning.

**Skewers (meat):**

Tool for cutting butchers', Harmer & Wright, 2242.

**Skin-rasps for the hands.** *See* Rasps.

**Skins and hides.** *See* Leather.

**Skips.** *See* Baskets.

**Skirts.** *See* Dresses.

**Sky-lights.** *See* Windows.

**Slabs:**

In combination with lattice framing, Rideal, 113.
Compound material for and forming floor, Pope, 159.
For use in making fire-proof flooring, Swarbrick, 491.
Applying cements to and making, Ross, 850.
Imitation "faïence parisienne," Gedge (*Guelton & Co.*), 1558.
For forming various parts of buildings, Lascelles, 2151.
Making fibrous, by rolling pressure, Odling, 2477.
Making porous or honey-combed, Chevallier, 2528.
Compound or material for making, Baggeley, 4067.
Compound for, used in ship-building, Wilkinson, 4267.

**Slag or scoria (utilising):**

For lining furnaces, Siemens, 43.
Casting and annealing, for various purposes, Luckenbach, 243.
For producing steel, Clark (*Eyquem*), 256.
In making carbonaceous materials, Weare & Isherwood, 326.
In making metal coatings, Lake (*Brownlow & Francis*), 340.
In sewage clarifying mixtures, Hallsworth & Bailes, 573.
In making roads and tracks, Prosser, 861.
Crushing or disintegrating clinkers, Milburn & Jackson, 933.
Tap cinder for hearths of puddling furnaces, Inns, 1005.
For non-conductors and casting in moulds, Dähne, 1052.
Converting, into sand or granules, Bodmer & Bodmer, 1054.
For making "silicate cotton," Hughes (*Bergius*), 1596.

**Slag or scoria (utilising)**—*cont.*
Cinder from pyrites in making chlorine, Deacon, 1632.
Refining, Velge, 1924.
In making foundry and forge pig iron, Sauvée (*Helson*), 2797.
For making bricks, blocks, tiles, &c., Caddick, 3467.
For making bricks, blocks, tiles, &c., Caddick, 3640.
For fettling puddling furnaces, Trick & others, 3909.

**Slate.** *See* Stone.

**Slate (quarrying).** *See* Mining.

**Slaughtering; slaughter houses:**
Instrument or apparatus for, Wackett, 68.
Mechanical pole-axe, Hewitt, 182.
Bladed instrument for, Mayer, 1371.
Disinfecting or cleansing floors, Wheeler, 1592.
Ventilating slaughter houses, Lanyon, 2715.
Combined slaughtering & dressing, &c. apparatus, Knott, 3595.

**Sledges:**
Using pontoons as, on ice, Hodgson & Sweet, 1478.
For imitation snow slopes, Hodgson 1740.
Arrangement of spherical balls, &c. for, Harrison, 4470.

**Sleepers.** *See* Railways. Tramways.

**Sleeping-cars.** *See* Railway carriages.

**Sleeve-links.** *See* Buttons.

**Slicing and pulping roots.** *See* Root-pulpers.

**Slicing fruit, vegetables, &c.** *See* Preserving food.

**Slide-valves.** *See* Valves.

**Slippers.** *See* Boots and shoes.

**Slope-levels.** *See* Mathematical instruments.

**Slop-pails.** *See* Buckets.

**Slop-stones and basins.** *See* Sinks.

**Slotting machines.** *See* Cutting.

**Slubbing frames.** *See* Spinning (twisting).

**Sludge (treating).** *See* Manure.

**Sluices:**
Operating, Defty, 769.

**Small-arms and pistols.** *See* Fire-arms.

**Smelting, reducing, & refining metals; treating ores:**
Constructing and working furnaces, Siemens, 43.
Producing ferro-manganese or cast steel, Siemens, 43.
Obtaining metals from their chlorides, Lyttle, 105.
Conglomerate or compound for reducing ores, Lyttle, 105.
New pig iron for Bessemer steel making, Lyttle, 105.
Separating reduced metals, Lyttle, 105.
Producing steel, gray pig iron, and spiegeleisen, Lyttle, 105.
Smelting copper, tin, zinc and lead ores, Lyttle, 105.
Aërator or substitute for Bessemer converter, Lyttle, 105.
Obtaining metallic copper at one operation, Lyttle, 105.
Furnaces for reducing, smelting, melting, &c., Lyttle, 105.
Deoxodizing molten copper, Lyttle, 105.
Making steel, Browne (*Foundries & Forges Co.*), 120.
Ascertaining temperature of hot blasts in, Main, 127.
Cupola or blast furnaces, Willans, 157.
Purifying iron, steel, copper, lead, zinc, and nickel, Smith, 217.
Arranging tuyeres in purifying metals, Smith, 217.
Reverberatory and puddling furnaces, Perkins & Smellie, 218.
Making steel for springs, tools, &c., Clark (*Eyquem*), 256.
Separating zinc and lead from ores or minerals, Tanner, 279.
Treating "blue stone," &c. to obtain products, Tanner, 279.
Reducing furnaces and heating same, Wigg & Kennedy, 314.
Purifying molten iron by injected air, Baker, 327.
Blowing-engine for blast furnaces, Stevenson, 387.
Furnaces for, charging and supplying hot-air to same, Ure, 456.
Obtaining metals by electricity, Clark (*Lontin*), 473.
Melting, puddling, refining, &c., Middleton & Hayward, 493.
Separating silver, gold, and copper from solutions Suelus, 500.
Saving fuel and consuming smoke in furnaces, Wood, 508.
Furnaces for puddling, roasting ores, &c., Schofield, 511.
Calcining or roasting ores, Milburn & Jackson, 518.
Making hard and soft steel from mixed metals, Noad, 592.
Obtaining bright and silvery steel, Noad, 592.
Combining boilers with furnaces, Gidlow & Abbott, 655.
Treating ores and metallic compounds, Fitzgerald, 713.
Extracting gold and silver from baser metals, Fitzgerald, 713.
Discharging ores from calcining furnaces, Hall, 731.

**Smelting, &c. metals; treating ores**—*cont.*
Washing and separating ores, Hall, 731.
Copper ores and pig copper by adding zinc slag, Crocker, 768.
Revolving furnaces for, Crampton, 789.
Reverberatory and compound furnaces for, Parkes, 841.
Mechanical puddlers, Stoker, 847.
Revolving grate bottom for puddling furnaces, Kirk, 883.
Distilling volatile metals, Newton (*Berrese*), 894.
Using tin-plate scraps, Clark (*Larocque & Larocque*), 927.
Rotary puddling furnaces, Jones & Jones, 956.
Forming hearths of puddling furnaces, Inns, 1005.
Granulating and purifying iron, Bodmer & Bodmer, 1054.
Gases for reducing metals from their ores, Nicholas, 1116.
Reducing powdered ore for iron and steel, Larkin, 1125.
Arranging gas producer or furnace and retorts, Larkin, 1125.
Furnaces for roasting ores, Lockey, 1189.
Furnaces for roasting sulphurous ores, Kuhlmann, 1265.
Treating sulphur ores, Croll, 1307.
Rolling puddlers' rabbles and paddles, Hunting, 1309.
Puddling machine; driving same, Clough & Ridealgh, 1321.
Furnaces for melting brass or cast iron, Russell, 1445.
Separating tin, &c. from tin scrap, meat tins, &c., Morton, 1471.
Hot-blast furnaces for, Newton (*Stephens & Moller*), 1482.
Furnaces for melting and roasting, Howard & Bousfield, 1493.
Magnets for brass and iron separators, Faulkner, 1509.
Obtaining or purifying metals by distillation, Ross, 1807.
Direct-acting pump for blast furnaces, Wallace, 1816.
Injecting air or steam in, Clark (*Worms de Romilly*), 1849.
Combined melting, refining &c. furnace, Middleton, 1881.
Removing phosphorus, &c. from iron ores, Velge, 1934.
Amalgamating machines, Wiggins & Carvell (*Clouser*), 1973.
Extracting copper, Bousfield (*French Copper Co.*), 2042.
Furnaces for puddling, heating, and, Lake (*Rogers*), 2045.
Process of puddling, heating &, Lake (*Rogers*), 2045.
Kiln for roasting sulphurous minerals, Bousfield (*French Copper Co.*), 2054.
Converters for the Bessemer process, Nelson (*Fry*), 2114.
Applying heat in puddling and other furnaces, Cowper, 2122.
Making artificial iron ore, Johnson (*Cahen*), 2134.
Using residue from burnt pyrites, Johnson (*Cahen*), 2134.
Producing spongy metallic iron, Lyttle, 2406.
Obtaining iron in making bichromate of potash, Clouet, 2461.
Heating air in and for furnaces, Clark, 2474.
Separating metals from lead ores, Fitz-Gerald, 2481.
Calcining, &c. poor and other ores, Barnard, 2512.
Washing ores in process of crushing, Sholl, 2524.
Flux for smelting iron ore, Heinzerling, 2669.
Puddling furnaces, Roberts & Noble, 2732.
Stoppers for nozzles of Bessemer ladles, &c., Melling, 2734.
Producing foundry and forge pig iron, Sauvée (*Helson*), 2797.
Heating air for blast furnaces, Crossley, 2821.
Refining copper, Browne (*Mashes & Son*), 2849.
Converters for making steel, Wedekind (*Witthöft*), 2941.
Purifying cupreous solutions, Chadwick & Jardine, 2951.
Silver from cupreous solutions, Chadwick & Jardine, 2951.
Compound for purifying, &c. iron in puddling, Haythorne, 2953.
Gas furnace for use in, Wedekind (*Bülowius*), 3064.
Making malleable cast iron, Tenwick, 3090.
Puddling & other furnaces, Longsdon (*Krupp*), 3133.
Mechanical puddling furnaces, Christy (*Pernot*), 3150.
Rakes for drawing puddled balls, Christy (*Pernot*), 3150.
Heating melting pots, Ratcliff & Ratcliff, 3155.
Hydrocarbon furnaces for, Borland (*Borland*), 3178.
Making cast iron, Willans, 3197.
Lessening oxidation of heated iron or steel, Willans, 3197.
Making iron & steel direct; furnaces, &c. for same, Crampton, 3202.
Combined arrangements of furnaces for, Smyth, 3253.
Automatic agitator or mechanical puddler, Smyth, 3253.
Ore-dressing machine, Boyns, 3418.
Utilising "tank waste" in making iron, Messrs. Raine, 3433.
Combining retorts with furnaces, Stirling & Peacock, 3456.
Using electric fluid in making steel, Prosser, 3468.
Retort for roasting metallic ores, Thompson & Ladelle, 3533.
Deoxidating, calcining, and reducing ores, Lyttle, 3579.
Producing copper in powder; smelting zinc, Lyttle, 3579.
Producing "blister" steel for cast, &c. steel, Lyttle, 3579.
Rotatory puddling furnaces, Jones & Jones, 3588.
Producing finely powdered coal for furnaces, Ferry, 3714.
Producing soft and hard malleable iron, Bell, 3778.
Cupolas with moveable bottoms, Birkby, 3792.
Mechanical puddling and roasting furnaces, Espinasse, 3806.
Generating gas in and for furnaces for, Jackson, 3841.
Precipitating copper and precious metals, Bousfield (*French Copper Co.*), 3870.
Puddling furnaces and puddling chambers, Casson, 3888.
Expediting puddling and refining of iron, Casson, 3888.
Making iron; fettling puddling furnaces, Trick & others, 3909.
Making steel; blast & steel making furnaces, Bromilow, 4132.
Feeding oil to furnaces for, Walker (*De Bergue*), 4341.
Supplying mixed air and steam to furnaces, Preiswerk, 4384.
Furnaces for roasting precious ores, Newton (*Fryer*), 4388.
Making steel from Cleveland ores, &c., Shaw & Hutchinson, 4390.
Gas furnaces for melting steel and, Godfrey & Howson, 4414.
Rotary puddling furnaces, Johnson (*Sellers & Sellers*), 4443.
Separating powdered ores by blasts of air, Parkinson, 4473.

Smelting, &c. metals; treating ores—*cont.*
Reducing, desilvering, and decopperising galena, White, 4495.
Reducing native sulphides of zinc and antimony, White, 4495.
Refining copper by electricity, Wilde, 4515.
Fire-basket or grate-box for furnaces for, Jensen (*Pütz*), 4538.

Smiths' bellows. *See* Blowing engines.

Smiths' forges. *See* Forging metals.

Smoke prevention; burning and consuming smoke:
In grates, stoves, and furnaces, Wavish, 30.
In steam-boiler and other furnaces, Milner, 54.
In steam-boiler furnaces, Abel (*Smith & Smith*), 244.
In furnaces, Marchant, 304.
In stoves or fire-places for warming rooms, Doulton, 365.
In sectional steam-boilers, Shaw, 368.
In steam-boiler, puddling, and other furnaces, Wood, 508.
In steam-boiler and other furnaces, Donald, 532.
Curing smoky chimneys, Turner, 545.
In metallurgical furnaces, Gidlow & Abbott, 655.
In steam-boiler and other furnaces, Ruck, 877.
In puddling, heating, and other furnaces, Kirk, 885.
Chimney pots or tops for, Hooper, 964.
In pottery kilns or ovens, Malpas, 1064.
In fire-places, Lowder, 1119.
In steam-boiler furnaces, Ward, 1133.
In steam-boiler and other furnaces, Elson, 1138.
In furnaces for burning lime, roasting ores, &c., Lockey, 1159.
Lessening, in steam-boilers, Blake, 1207.
Obtaining substances out of smoke of pit coal, Braun, 1278.
In steam-boiler furnaces, Buret de Longagne, 1316.
Chimney tops for, Batt & Batt, 1325.
Cowl for, Catherall, 1544.
In steam-boiler and other furnaces, Erskine, 1574.
In fire-grates, Russell, 1631.
In furnaces, Newton (*Carré*), 1634.
Wind-guard top cap or cowl for, Landau, 1674.
In boiler, salt pan, and other furnaces, Newbold, 1698.
In steam-boiler furnaces, Cornish, 1789.
In combined metallurgical furnaces, Middleton, 1881.
In furnaces of locomotive engines, &c., Dunn, 1926.
Locating smoke nets in flues; chimney tops, Hyatt, 2015.
Preventing down-draught in chimneys, Hyatt, 2015.
Diminishing, in steam-boilers, Shaw, 2173.
In furnaces of generators, Gedge (*Dubois*), 2175.
In steam-boiler furnaces, Jolly, 2211.
Carrying away from fire-places, Wawn & Willcox, 2340.
In fire-stoves or grates and cooking ranges, Day, 2337.
In gas-stoves, Holmes (*Sharp*), 2387.
Chimney pots for, Knight, 2465.
In steam-boiler and other furnaces, Clark, 2474.
In steam-boiler furnaces, Mace & Carr, 2589.
In steam-boiler furnaces, Singleton, 2652.
In steam-boiler and other furnaces, Sawyer, 2694.
In furnaces for evaporating and incinerating, Rabot, 2925.
In gas furnaces for heating crucibles, Fletcher, 2927.
In steam-boiler or other furnaces, Messrs. Farrar, 2967.
In furnaces, Ezard, 3068.
Smokeless annealing oven, Tenwick, 3090.
In steam-boiler furnaces, Mills, 3176.
In steam-boilers for tram-car engines, Porteous & Bruce, 3264.
In steam-boiler furnaces and hot-water stoves, Amory, 3284.
In steam-boiler furnaces, Gedge (*Dufour*), 3419.
Attachment for chimney pots, Tarrant, 3722.
In steam-boiler furnaces, Twibill, 3728.
In marine and other steam-boilers, Cottew, 3805.
In steam-boiler flues, Jensen (*Halsey & Deaderick*), 3994.
In steam-boiler furnaces, Cameron (*Smith & others*), 4127.
In lime and other kilns and furnaces, Finlay, 4186.
In fire-places or grates, Burt, 4361.
In steam-boiler and other furnaces, Morgan, 4388.
In steam-boiler furnaces, Bordone, 4401.
In steam-boiler furnaces, Lipscombe, 4501.

Smoking pipes. *See* Tobacco.

Smoothing irons. *See* Ironing.

Smoothing or polishing. *See* Grinding, polishing.

Smut-machines. *See* Grain and seeds.

Snaps or fasteners:
For ornamental and useful articles, Smith, 3238.

Snow (dissolving). *See* Roads (cleansing).

Snow-slopes (imitation). *See* Games.

Snuff. *See* Tobacco.

Soap:
Producing curative, emollient, compound & other, Green, 129.
Using marine algæ or extracts thereof in making, Green, 129.
Producing soap powders; compounds for making, Green, 129.

Soap—*cont.*
Interlacing, plugging, cutting, and figuring, Green, 129.
Toilet, with a core (duplex and composite soap), Lyttle, 656.
Using silicate of soda, &c. in making, Lewis & Copie, 968.
Purifying greases for making, Hopkinson, 1667.
Utilising gases evolved in making, Lake (*Turner*), 2046.
Using soluble glass, &c. in oil-soap, Lewis & Copié, 3248.
Making ornamental & compound, McKenzie & Donovan, 3265.
From soap bath used in annealing glass, Monckton, 3307.
Making detergent salts and soaps, Way, 3876.
Using marine algæ or extracts thereof in making, Green, 3891.
Producing perfumed, medicated, tar, and other, Green, 3891.
Compound for mixing with other soaps, Green, 3891.
Hard compound soaps and soap powder, Green, 3891.
Forming and stamping bars of, Green, 3891.
Preparing dry, in solidified blocks, Shaw & Blackburn, 3955.
Combining terebene with, Cleaver, 4248.
Making "terebene soap," Cleaver, 4335.
Pans for concentrating, Prentice, 4391.
Mixing, without exposing to air, Degener (*Weiler*), 4560.

Sockets:
For securing "brushing hooks" or sickles, Morton, 2276.
For connecting brush and broom handles, Longbottom, 2288.
For bicycles, Carter, 2893.

Socks; stockings:
Paper night and travelling socks, Loder, 3531.
Paper stockings for ladies to cover boots, stockings, &c. Loder, [3531.

Socks (knitting). *See* Knitting.

Soda, salts of soda. *See* Alkalies.

Sodic potassic sulphide. *See* Alkalies.

Sofas. *See* Furniture.

Softening or batching jute, &c. *See* Spinning.

Solar-light and heat:
Showing position of lines of, to the earth, Newton (*Allen*), 1428.

Soldering metals:
Halves of metallic handles together, Garfield, 664.
Irons for, heated by gas, Asher, 665.
Irons for, Wotton, 2055.
Preparing sheet iron and brass articles for, Caddick, 2164.

Solitaires. *See* Buttons.

Sorting and separating. *See* Sifting.

Soundings:
Machine for taking, without stopping vessel, Cooper, 2624.
Pressure gauge for taking, Bucknill & Casella, 2742.
Taking, by indicating water pressure at bottom, Kennedy, 3540.

Soup. *See* Preserving food.

Sowing seed:
Combined sower & extirpator or grubber, Gedge (*Dufour*), 20.
Potato drill, Von Swinarski, 1151.
Opening furrows for potato planting, Barton, 1391.
Using horse-hoes as drills, Hircock & Hempsted, 1851.
Drills for sowing clover, &c. and wheat at same time, Bellamy, [2094.
Regulating and indicating delivery seed drill, Bellamy, 2094.
Potato drills; arranging wheels of same, Ferguson, 2129.
Making ridges for turnips and other root crops, Mitchell, 2186.
Pulverising and pressing soil around seed, Hughes, 2346.
Combined pulveriser and drill plough, Corbett, 3135.
Seed drill with adjustable frame, Clark (*M'Clintock*), 3230.

Spades; shovels; scoops:
Attaching handles to, Lee, 991.
Shovels for excavators, Mills (*Chapman & Souther*), 1688.
Mandril and dies for shaping socket, &c., Abel (*Blake*), 1839.
Casting metal blanks for, Abel (*Binns & Barnes*), 1898.
Using bayonets as spades or scoops, Rochas, 2396.
Miners', Bristol rib, and draining shovels, Griffin, 3402.
Combined three-pronged fork and spade, Griffin, 3402.
Or "excavator" for use in dry-closets, Johnston, 4194.

Spanners and screw-keys. *See* Wrenches.

Spark-catchers; spark-arresters:
Rotary vessel or, Braun, 1278.
For steam-engines, Justice (*Shaw*), 1828.
For locomotives, Morgan-Brown (*Halsted*), 2790.
For locomotives, Clarke (*Proctor*), 4012.
Extinguishing sparks in engine, Budenberg (*May*), 4256.

Speaking tubes. *See* Signals.

Spectacles. *See* Optical instruments.

Spectroscopes. *See* Optical instruments.

Speed-indicators. *See* Indicating.

Speed-regulators or governors. *See* Governors.

Spikes and nails. *See* Nails.

Spindles; spindles and flyers:
Steadying flyers and bobbin spindles, Kennedy & Acheson, 40.
Bearings for vertical shafts or, Collingwood, 79.
Driving, in spinning frames, Wright & Pollard, 133.
Portable winding, for shuttle cops, Reid, 166.
Endless bands for driving, Ramsden, 221.
Mounting and arranging driving bands, Binns, 335.
Covers for steps of, to prevent oil waste, &c., Palmer, 345.
Combined mule and shuttle spindle, Le Moyne, 750.
For spinning; oiling same, Bonneville (*Martin*), 777.
Loom picker spindles, Shackleton & Peel, 840.
Self-lubricating bolsters and steps, Newton (*Murfey*), 1025.
Oiling bobbin, in singeing yarns, Jagger & Jagger, 1142.
For cages of hydro-extractors, Broadbent, 1144.
Spindles and flyers for throstle frames, Bailey, 1244.
Forming arms of flyers, Illingworth, 1365.
Oil-cans for oiling, Kaye & others, 1387.
Adjusting, of multiple drills, Welch, 1778.
Applying tension to driving bands of, Finlayson, 1819.
Making flyers from toughened glass, Martin & Ashley, 1922.
Driving, of spinning, doubling, &c. machines, Holt, 2091.
Securing bobbins and spools upon, Crabtree, 2179.
Driving, in twisting frames by friction, Arrol, 2191.
Making flyers of cast iron, Farrar, 2263.
Lessening vibration of flyers and, Horsman & Goodall, 2300.
For screw-making machinery, Lloyd & Rogers, 2519.
Connecting bobbins and, in spinning and doubling, Shaw, 2570.
Lubricating, throstle and mule, Hindley, 2670.
Suspending "ring" flyers, Carter, 3060.
Bearings for, Clark (*Lathrop Antifrictionate Co.*), 3148.
Oiling, of spinning machinery, Gill & others, 3296.
For throstle frames; lubricating same, Grether, 3370.
Bearings for centrifugal machine, Rammell, 3587.
Lubricating, of mules and twiners, Walker & Pickford, 3741.
Grinding spinning machine, Leyland, 4041.
For loom shuttles, Morgan-Brown (*Stevens*), 4077.
Hollow, for centrifugal machines, Duncan & Newlands, 4107.
Roller bearing for, Hoadley, 4148.
Pressers for centrifugal flyers, Cottrill, 4199.
Arranging, in spinning and doubling, Wrigley, 4376.

Spindles (lock). *See* Locks.

Spinning (batting, opening, ginning, &c. fibres):
Superseding batting, Clark (*Portait & Weber*), 28.
Distributing liquids in batching jute, &c., Freir, 584.
Compound scutching and preparing machinery, Faren, 586.
Openers or scutchers and lap machines, Buckley, 1111.
Destroying vegetable matters in wool & silk, Smith & Tolson, [1302.
Breaking, separating, and cleaning flax, &c., Davison, 1351.
Apparatus for beating flax, &c., Edwards, 2018.
Flax and tow waste, Mewburn (*Lang & Desjardins*), 2018.
Combined breaking and scutching machine, Etrich, 2054.
Batching jute, &c. whilst passing to "card," Malcolm, 2339.
Opening and beating cotton, &c., Haseltine (*Kitson*), 2433.
Burring or cleaning, Barlow (*Saxon Machine Works*), 2445.
Obtaining fibres from wood, rags, &c., Noad, 2493.
Combined flax scutching & hackling machine, Kleinen, 2878.
Scutcher or flax beating machine, Cardon, 2949.
Preparing the fibre of ramie, flax, &c., Coleman, 3072.
Intermediate cotton cleaner and carder, Clark (*Risler*), 3229.
Breaking, separating and cleaning flax, &c., Davison, 3479.
Cleansing, &c. fibres of epilobium hirsutum, Péaud, 3760.
Willeys or teazers, Birkhead, 3981.
Carbonising vegetable matter in wool, Alexander (*Michel*), 4088.
Beaters for cotton openers, Lake (*Kitson & Stott*), 4429.
Hanging beater blades on shafts, Lake (*Kitson & Stott*), 4429.
Decorticating, softening, &c. fibres, Tongue (*Raland*), 4478.
Opening, cleaning, scutching, and lapping, Whitehead, 4539.

Spinning (carding, combing, and heckling fibres):
Screw and chain gill apparatus, Bonneville (*Martin*), 2.
Carding & gilling worsted, silk, flax, &c., Fenton & others, 14.
Substitute for carding, Clark (*Portait & Weber*), 28.
Stopping carding-engine doffing cylinder, Flitcroft, 102.
Combs with double set of teeth or pins, France, 104.
Runners for combs to produce better slivers, France, 104.
Condensing carding-engines, Heape, 117.
Flattening or shaping wire for making cards, Foxwell, 282.
Stop-motion for carding-engines, Topp & others, 283.
Stripping carding-engine rollers, Rawsthorne & Monk, 435.
Twisters for condenser carding-engines, Greenwood, 467.
Combing wool and other fibres, Bradley & Campbell, 460.
Machine for drawing card pins, Worrall, 640.

Spinning (carding, combing, &c.)—*cont.*
Carding-engine travelling flats, Mulholland & Porter, 647.
Stop-motion for preparing and combing-machines, Wyrill, 648.
Presser and layer for carding-engines, Kenyon & Kenyon, 720.
Metal rings for condenser doffers, Priest & others, 940.
Tools for expanding doffer rings, Priest & others, 940.
Grinding cards and card rollers, Dronsfield, 1039.
Driving and connecting parts of carding-engines, Leigh & [Leigh, 1271.
Setting up carding points, Leigh & Leigh, 1271.
Making and arranging travelling flats, Leigh & Leigh, 1271.
Double combing wool, &c., Cure & Bradley, 1341.
Rollers used in preparing and combing wool, Kelly, 1366.
Carding fibres for making waddings, Oldroyd & Blamires, 1427.
Cleaning combs in combing machines, Whitehead & Best, 1480.
Weighing, &c. fibres in feeding carding-engines, Sykes, 1506.
Grinding cards on carding-engines, Hitchon, 1743.
Dressing frames for waste silk, china grass, &c., Souter, 1744.
Combing flax & hemp; picking & carding cordage, Latour, 1814.
Doffing action of hackling machines, Cunningham, 1853.
Alarm for, and stopping combing-machines, Whitehead, 1891.
Feeding carding-engines, &c., Burlock (*Harwood*), 2025.
Combined breaking, &c., and heckling machine, Etrich, 2054.
Utilising discarded cards, De Montoison, 2110.
Roller for combing-machines, Stake & Whitehead, 2221.
Combing-machine cylinders & combs, Rushton & others, 2232.
Rollers & nippers of combing-machines, Rushton & others, 2232.
Card setting machines and cards, Haley, 2313.
Setting, stripping, grinding, &c. carding-engine flats, Kay, 2336.
Self-stripping rollers for carding-engines, Kay, 2336.
Preventing waste of wool in carding-engines, Heape, 2565.
Removing noil from teeth of circular combs, Walmsley, 2641.
Carding fibres for making waddings, Oldroyd & Blamires, 2654.
Combined flax scutching & hackling machine, Kleinen, 2878.
Treating and passing cotton to slubbing frame, Handy, 2962.
Combining shearings or waste with fleece or lap in carding, [Dayral (*Lopez*), 2985.
Electric stop-motion, Bullough & Smalley, 3002.
Cleansing carding engine strippers, Haslam, 3029.
Removing waste fibres from stripper, Wallwork, 3100.
Applying blocks to top flats and stripper, Wallwork, 3100.
Intermediate cotton cleaner and carder, Clark (*Risler*), 3229.
Self-stripping by action of air, Clark (*Risler*), 3229.
Clothing for cards generally, Clark (*Risler*), 3229.
Cork fabric or foundation for cards, Grether, 3349.
Chain gill; using intersecting sheets, Barbour, 3423.
Preventing waste, &c. in carders, Whitham & Witham, 3441.
Stop-motion for combing-machines, Knowles, 3474.
Tightening carding-engine driving bands, &c., Taylor, 3562.
Forming continuous slivers for candle-wick yarn, Hill, 3738.
Grinding card-flats and card-rollers, Dronsfield, 3786.
Feeding carding-engines, &c., Burlock (*Harwood*), 3794.
Combing noil, &c. from circular combs, Mirfield & Scott, 3803.
Pins for combs, gills, fallers, &c., Harding & Harding, 4178.
Drilling combs, gills, hackles, &c., Harding & Harding, 4178.
Making and drilling fallers, Harding & Harding, 4178.
Cotton waste carding-engines, Wild, 4209.
Foundations for cards or card felt, Hebblethwaite, 4306.
Trimming "selvages" of carded cotton, Tattersall, 4335.
Preventing waste accumulating on feed rollers of carding- [engines, Tattersall, 4335.
Fluted rollers for gill-boxes, &c. & arranging same, Thackray, [4471.

Spinning (twisting, drawing, slubbing, roving, and [doubling fibres):
Forming rovings direct from carding-engine, Fenton & others, 14.
Twisting machine regulator, Sauvée (*Rolin & Guitard*), 21.
Steadying flyers and bobbin spindles, Kennedy & Acheson, 40.
Weighting top and delivery rollers, Kennedy & Acheson, 40.
Working copping or building rails, Kennedy & Acheson, 40.
Doubling, twisting, and winding, Lœwenstein & Ward, 73.
Stop-motion for winding machinery, Lœwenstein & Ward, 73.
Driving spindles, Wright & Pollard, 133.
Endless driving bands for use in, Ramsden, 221.
Mounting and arranging driving bands, Binns, 335.
Covers for spindle steps to prevent oil waste, Palmer, 345.
Clothing or coating rollers, Edwards (*Edwards*), 357.
Back stop-motion for drawing frames, &c., Elce, 366.
Facilitating piecing up of broken ends, Elce, 366.
Imparting a false twist to slivers, slubbings, &c., Elce, 366.
Bushing copping rail tubes; oiling same, Elce, 366.
Stopping frames on bobbins filling, Bradley & Walbank, 389.
Stopping drawing frames when cans are full, Tomlinson, 462.
Constructing and arranging "twisters," Greenwood, 467.
Spinning weft for making fringes, Dixon & others, 567.
Regulating velocity of bobbins and spools, Girdwood, 568.
Maintaining tension of yarns, &c. in winding, Girdwood, 568.
Strap tension apparatus for slubbing frames, Gudgeon, 582.
Mangle wheel mules, Catlow & others, 720.
Combined mule and shuttle spindle, Le Moyne, 750.
Feed ring or flange for bobbins, Broughton & others, 767.
Bobbins, Freir & Fairlie, 773.
Spindles; oiling same, Bonneville (*Martin*), 777.
Flax and similar roving frames, Cotton, 844.

Spinning (twisting, drawing, &c.)—*cont.*
Elongating and twisting yarn, Bywater, 864.
Spinning yarn without drawing rollers, Newton (*Good*), 876.
Self-adjusting condensers, Newton (*Good*), 876.
Adjusting drag of yarn on bobbins, Newton (*Good*), 876.
Damping or saturating cops or bobbins of yarn, Holland, 896.
Self-lubricating spindle bolster, Newton (*Murfey*), 1025.
Self-acting woollen mules, Travis, 1071.
Double twist breaker, Smith (*Dauphinot & Martin*), 1082.
Steel bobbin tubes, Messrs. Sykes, 1107.
Driving bands for use in, Durrance & others, 1131.
Rotating plate system and mechanism, Newton (*Hibry*), 1185.
Adapting mule jenny to doubling, Newton (*Hibry*), 1185.
Doffing throstle and cap frames, Bailey, 1244.
Spindles and flyers for throstle frames, Bailey, 1244.
Tube or cap and fly frames, Illingworth, 1365.
Doubling yarns; flyers, Illingworth, 1365.
Preventing hard waste or "double" in, Illingworth, 1365.
Paper tubes for use in, Lund & others, 1372.
Oil-cans for oiling spindles, Kaye & others, 1387.
Grinding conoidal "scroll" drums, Handyside, 1702.
Winding preparatory to doubling, Stubbs & Corrigan, 1717.
Winding rovings on tubes and classifying same, Bazley, 1769.
Bobbins for roving frames; skewers, Bazley, 1769.
Dispensing with bobbins in fine roving frames, Bazley, 1769.
Applying tension to tapes or bands in, Finlayson, 1819.
Caps, tubes, & flyers of toughened glass, Martin & Ashley, 1922.
Preventing laps in throstle doubling, Moscrop, 1963.
Doubling yarns for hose pipe warp, Smith & Smith, 2035.
Driving gear for spindles, Holt, 2091.
Yarn counters or indicators for mules, Orme, 2130.
Doubling and winding yarns, &c., Richards & others, 2136.
Regulating velocity of bobbins, pirns, &c., Gullery, 2152.
Securing bobbins and spools upon spindles, Crabtree, 2179.
Driving spindles by friction instead of bands, Arrol, 2191.
Cast iron flyers, Farrar, 2263.
Compound for forming steps and saddles, Tice, 2275.
Compound for forming rollers, bobbins, &c., Tice, 2275.
Making machines of less weight for, Horsman & Goodall, 2300.
Lessening vibration of spindles, &c., Horsman & Goodall, 2300.
Obtaining uniform drag on bobbins, Horsman & Goodall, 2300.
Cop-tubes, Knott & others, 2331.
Winding doubling frames and driving same, Unsworth, 2341.
Ring and traveller, Thomson (*Chapin*), 2451.
Ensuring rotation bobbins and spindles together, Shaw, 2570.
Preventing breakage of thread, Bonneville (*Martin*), 2591.
Lubricating spindles and journals, Hindley, 2670.
Mules and twiners, Baxter & others, 2714.
Carded wool or combed wool, Henderson (*Collière & Co.*), 2730.
Reducing drag on yarn in throstle frames, Tylor, 2749.
Dispensing with drawing frames in cotton, Handy, 2883.
Electric stop-motion, Bullough & Smalley, 3002.
Preventing laps in throstle doubling, Whalley & Weild, 3014.
Electric stop-motion for roving, &c. frames, Wilkinson, 3032.
Suspending ring flyers; arranging driving bands, Carter, 3060.
Preventing rovings stretching, Carter, 3060.
Producing greater tension and drag in, Carter, 3060.
Winding measured lengths of thread on to equalizing bobbins, [Keats & others, 3123.
Sewing thread or cord; stop motion, Keats & others, 3123.
Drawing and twisting by one pair of rollers, Schimmel, 3191.
Lubricating spindles, Gill & others, 3296.
Doubling and winding yarns and threads, Smith, 3342.
Thread catchers for use in changing bobbins, Grether, 3370.
Rings, spindles, and bearings; oiling same, Grether, 3370.
Substitute for "cone drums," Jackson & Winders, 3489.
Stop-motion and "end controller," Benson (*Wicks*), 3537.
Stop-motion attachment for doublers, Benson (*Wicks*), 3537.
Spools or reels of paper, &c., Baker, 3567.
Cop-tubes, Knott & Harrison, 3572.
Making cotton-can rings, Brayshaw, 3618.
Twisting frames; trap to prevent waste, Bottomley, 3631.
Combined doubling, twisting, & reeling machine, Storer, 3656.
Lubricating spindles, Walker & Pickford, 3741.
Preventing knotty yarn in roving frames, Oliver, 3752.
Doubling winding frames, Raworth & Raworth, 3968.
Mules working in a vertical direction, Wadsworth, 3993.
Condensing roves for blanket, &c. yarns, Mackie, 4001.
Grinding spindles, Leyland, 4041.
Preventing broken ends falling in drawing, Kaberry, 4071.
Drag or break for bobbins on spinning frames, Gilmore, 4085.
Bobbins for roving frames, Oliver & Butterworth, 4190.
Pressers for centrifugal flyers, Cottrill, 4199.
Regulating "drag" upon bobbins, Wrigley, 4376.
Arranging spindles to facilitate doffing, Wrigley, 4376.
Covering drawing rollers with india-rubber, Chadwick, 4442.
Self-acting tension for mules, Cryer & Morris, 4520.

Spinning ropes. *See* Ropes.

Spinning tobacco. *See* Tobacco.

Spirit or alcohol of milk. *See* Beverages.

Spirit-levels. *See* Mathematical instruments.

Spirits. *See* Alcohol. Distilling.

Spirometers:
For medical purposes, &c., Mayer, 259.

Splashing when walking (preventing). *See* Boots.

Splints for matches. *See* Matches.

Splitting wood. *See* Cutting wood.

Spooling yarns or threads. *See* Winding.

Spools or reels. *See* Bobbins.

Spoons; ladles:
Table rest for, Cave, 571.
Making metal dies for, Lake (*Champney*), 842.
Annealing glass for making, Monckton, 3307.

Spouts and spouting. *See* Pipes.

Spray-producers:
For carburetting air or gases, Speir & Mather, 622.
Flexible ball with jet pipe, Binko, 948.
Spraying petroleum in furnaces, Walker (*De Bergue*), 2100.
Nozzle piece for garden hose, &c., Tweeddale, 2597.
Bottle-stoppers for spraying ether, &c., Elias, 2776.
For mottling vegetable ivory buttons, Hesse, 4197.
Spraying oil in furnaces, Walker (*De Bergue*), 4241.

Spreading manure. *See* Manure distributors.

Spriggs and nails. *See* Nails.

Spring-balances. *See* Weighing.

Springs:
Compressed air or gas, Dick (*Giffard*), 55.
For shuttles used in weaving, Pye, 70.
Tool for making flat wire, for stop-motions, &c., Lancaster, 250.
Producing steel for making, Clark (*Eyquem*), 256.
Connecting and locking plates of, Byron (*Godley*), 550.
Spiral, for carriages, journals, &c., Byron (*Godley*), 550.
Spring hinges or door springs, Adams, 798.
Suspension carriage, Johnson (*Bastolas & Carlier*), 1023.
Lyre form of, for mangles and clothes wringers, Bacon, 1074.
Applying spiral, to carriage heads, Harvie, 1348.
Bearing, acting horizontally or obliquely, Spencer, 2062.
Fashioning claws, eyes, &c. of plate, Holmes (*Porter*), 2311.
For carriages; applying, &c. same, Wise (*Anthoni*), 2828.
For corsets, bed bottoms, crinolines, &c., Kellogg, 3289.
For railway and other vehicles, Timmis (*Godley*), 3325.
Helical, for door locks, Schuchardt & Broedel, 3346.
For safety-valves, Adams, 3761.
Forming claws & box ends, &c. of plate, Holmes (*Porter*), 3781.
Curving or "setting" carriage, Tongue (*De Forest*), 4061.
Draw and bearing, for railway and other carriages, Scott, 4297.

Squares (drawing). *See* Mathematical instruments.

Squeezing lemons, &c. *See* Lemons.

Squeezing metals. *See* Forging.

Stables; cattle-sheds; pig-houses:
Ligno-asphaltum paving blocks, Clark, 1280.
Grooving blocks of slate for floors of, Elwes, 1386.
Disinfecting or cleansing floors of, Wheeler, 1592.
Automatic ventilating apparatus for, Lanyon, 2715.
Brushes for cleaning, Barker, 3329.
Applying magnets to ground of cattle-sheds, Lyon, 3382.
Compound for flooring, Wilkinson, 4267.
Ventilating apparatus, Capper, 4312.

Stacking or elevating:
Combining elevators with thrashing machines, Greig, 1463.
Adjustable covers for corn and hay ricks, Slater, 3391.

Stages. *See* Platforms.

Staining fabrics. *See* Dyeing.

Stairs. *See* Buildings.

Stamping or embossing. *See* Embossing.

Stamping or forging metals. *See* Forging.

Stamping or punching metals. *See* Punching.

Stamping ores and minerals. *See* Grinding.

**Stamps (hand and endorsing):**

Date, obliterating, and other, with movable type, Massey, 1957.
Dating and stamping tickets, Waugh, 2099.
For cancelling or defacing stamps, Geflowski, 3900.

**Stamps (postage, &c.):**

Instrument for affixing postage and other, Grafton, 735.
Printing postage and other, Bartlett & Murray, 1746.
Cancelling or defacing postage, Geflowski, 3900.
Apparatus for affixing postage and other, Woodward, 4259.
Separating and distributing postage and other, Ledger (*Dre-[velle*), 4431.
Pocket-holders for postage and other, Ledger (*Drevelle*), 4431.

**Starch:**

Preparing grain, &c. for making, Johnson (*Adamson*), 381.
Extracting, from tapioca, &c., Hunt (*Reynoso*), 1558.
Forming, from maize flour, Clark (*Chiozza*), 2007.
Magnetic starches, Darlow & Fairfax, 2102.
Aromatizing, with medicinal aromas, Hyatt, 2307.

**Statuary.** *See* Sculpture.

**Staves and walking-sticks.** *See* Walking-sticks.

**Stays; corsets:**

Using straw or tuscan plait, &c. for, Williamson, 83.
Stud fastenings for busks, Stokes & Goff, 254.
Fastening for, West, 1287.
Life-saving, swimming, and bathing, Crisp, 2974.
Flat spring or busk for, Kellogg, 3289.
Corset or self-inflating life-buoy, Lloyd, 3801.
Making lower part and strengthening back of, Harris, 4188.
Using steel strips in lieu of whalebone, &c., Thomas, 4269.

**Steam (supplying):**

To factories, works, & mines, Clark (*Worms de Romilly*), 1848.

**Steam-blowers.** *See* Blowing-engines.

**Steam-boats.** *See* Ship-building.

**Steam-boiler furnaces.** *See* Furnaces.

**Steam-boiler gauges.** *See* Gauges.

**Steam-boiler valves.** *See* Valves.

**Steam-boilers (cleansing; preventing incrustation [in: cleaning tubes):**

Preparation for ("apparature"), Scott (*Gerard*), 38.
Drying and coating with fat when out of use, Baker, 86.
Arranging mud collector, Abel (*Smith & Smith*), 244.
Using plumbago in, to prevent incrustation, Mason, 245.
Purifying feed-water, Allibon & others, 264.
Filtering rain, ditch, and other water for, Lambert, 360.
Purifying sewage and polluted waters for, Rydill, 399.
Treating water to remove incrustation, Rydill, 399.
Depositing impurities in feed-heater, Hall & others, 530.
In fuel economizers or water-heaters, Bailey, 539.
By preventing sediment in feed-water, Mosman, 751.
Preventing accumulation of mud, scale, &c., Hunter, 1061.
Purifying feed-water, Walker (*Pauckzch*), 1099.
Preventing scurf, &c. forming on fire-box tubes, Ward, 1133.
Composition or specific for, Felice, 1343.
Powder for removing, Ludolph, 1776.
Combined scraper and tube plug, Allan, 1846.
Sediment or deposit collector for locomotive, Dunn, 1926.
Anti-incrustation battery, Morgan-Brown (*Crompton*), 1967.
Establishing thermo-electric current for, Collet, 2002.
Using exhaust to prevent incrustation, Packman, 2374.
Preventing sediment adhering, Renshaw (*Renshaw*), 2693.
Scraper for cleaning fire-tubes of, Mayston, 2745.
Scum and sludge collectors for, Twibill, 3728.
Preventing incrustation of smoke tubes, &c., Cottew, 3805.
Cleaning flues by suction, Benson (*Crosby & McCabe*), 4032.
Mixing oil with water to prevent incrustation, Major, 4354.

**Steam-boilers (generating and superheating steam):**

Material for packing man-hole or joints of, Fish, 9.
Utilising waste heat in, and heating, Fisher & Rutherford, 56.
Preventing priming in, Simmons, 65.
Cylinder and piston combination for, Boulton, 96.
Rivetting boiler plates, Nussey & Leachman, 132.
Safety-valve and high steam alarm, Cave, 141.
Automatic easing apparatus for safety-valve, Gilmour, 164.
Generating steam in gas and hot-air engines, Vera, 175.
Portable drilling apparatus for use in making, Enoch, 190.
Condensing surplus steam in marine, Johnson & Allan, 191.
Increasing evaporation; preventing priming, Graham, 202.
Salt water steam generator, Perkins, 225.
For warming railway carriages, Scott (*Haag*), 236.
Arranging and setting in tiers, Abel (*Smith & Smith*), 244.
Constructing and arranging marine, Allibon & others, 264.

**Steam-boilers (generating, &c.)—*cont.***

Preventing priming and saving fuel in, Allibon & others, 264.
Boiler-shell plate drilling machines, Allan, 297.
Fitting or connecting tubes, Johnson (*Constant*), 381.
Steam-generating grate & blow-off, &c. valves, Lake (*Farris*), 316.
Preventing priming in, Stockley, 358.
Constructing and arranging sectional marine, &c., Shaw, 368.
Preventing priming in, Rydill, 399.
Quilted fabric for covering, Gedge (*Gaud-froy*), 434.
Steam-trap to act as safety-valve, Shann, 448.
Forming water space around furnaces, Vicars & others, 529.
Promoting circulation in water space, Vicars & others, 529.
Protecting, against radiation, Hall & others, 530.
Combined gas making furnace and steam generator, Kidd, 531.
With internal fire-box, Pieper (*Kasslowsky*), 536.
Safety, circular and inverted disc valves, Stuart, 537.
Compound lock-up safety-valve, Bailey, 539.
Duplex, for confectionery manufactories, &c., Brown, 549.
Employing "mica," &c. for covering, Seccombe & Talling, 567.
Arranging, with air compressors, Richardson & Ball, 564.
Generating steam, for mixed fluid engines, Boulton, 574.
Spiral deflector or fuel saver, Buchanan (*Studwell*), 628.
Arranging, with puddling, &c. furnaces, Gidlow & Abbott, 655.
Rotary generator or vessel, Boulton, 638.
General construction of marine & other, Walker, 733.
Arranging, for utilising exhaust steam, Mosman, 751.
Stove for generating steam, George, 808.
Hot-air circuit to prevent radiation, &c., Anderson, 825.
Promoting circulation of water in, Newton, 878.
Constructing and setting, Mace & Dickinson, 931.
Supporting, by water trunnions, Dickinson & Mace, 932.
Constructing & setting marine & other, Dickinson & Mace, 962.
Arranging and preventing priming; safety-valve, Alison, 967.
For producing and cooling superheated steam, Dixwell, 1012.
Regulating temperature of superheated steam, Dixwell, 1012.
Operating safety-valve, Lake (*Sulzbach*), 1049.
Utilising slag as a non-conductor for covering, Dähne, 1052.
Saving fuel and heat in, Walker (*Pauckzch*), 1099.
Employing two series of air tubes in, Ward, 1133.
Heating air in fuel economizers, Elson, 1138.
Tube expanders for fixing tubes in plates, Lyall, 1164.
Constructing & arranging vertical and horizontal, Blake, 1207.
Arranging chambers and tubes in, Hilton, 1208.
Constructing and arranging, Buret de Longagne, 1316.
Drying chests and superheaters, Buret de Longagne, 1316.
Arranging, for heating by petroleum, &c., Jacquet, 1398.
Increasing heating surface to save fuel, Apperly, 1461.
To generate and condense steam, Budge (*Mirallee*), 1496.
Vertical, with internal furnaces to save fuel, Hedges, 1534.
Forming and fitting internal flues and pipes, Plant, 1539.
Hydraulic machinery for punching, &c. plates, Brown, 1607.
Multitubular; superheater; setting same, Hessel (*Pragerhoff*) [1638.
With steam jacket for drying steam, Wirth (*Kausal*), 1648.
Generating and superheating economically, Courtenay, 1656.
Fusible plugs for, to prevent explosion, Smith, 1670.
Non-conducting composition for coating, Leadbetter, 1683.
Vertical & horizontal, & superheaters for same, Trossin, 1708.
Expanding and smoothing tubes, Lake (*Pagan & others*), 1722.
Arranging, for steam cultivation, Martindale, 1721.
Increasing heating surface in tubular, Cornish, 1728.
Combined tube plug and scraper for marine, Allan, 1846.
Safety-valves and operating same, Lockwood, 1979.
Fitting water tubes in fire box of locomotives, Dunn, 1926.
Circulating water in, Jordan, 1942.
Hollow tube stoppers for, Jordan, 1943.
Increasing heating surface by use of rivets, Collet, 2002.
For heating & evaporating, & preventing priming, Ball, 2061.
Pressure regulator or valve for, Bull, 2061.
Preventing priming in fire-engine and other, Field, 2061.
Constructing and setting, Hughes (*Smith & Bates*), 2063.
Arranging, in steam-cars, &c., Buret de Longagne, 2167.
Superheating and drying exhaust, Buret de Longagne, 2167.
A "non exploder" for, Armengaud (*Cornevin*), 2138.
Constructing and combining vertical and horizontal, McFar-[lane, 2159.
Arranging marine and other, in sections, Shaw, 2173.
Reducing lashing, &c. in marine; drying steam, Shaw, 2173.
Vertical and horizontal, for steam tram-cars, &c., Barclay, 2208.
Superheating steam and preventing priming in, Barclay, 2208.
Obtaining greater heating surface, &c. in, Jolly, 2211.
Arranging large water coils and pipes in flues, Jolly, 2211.
Metal chambered water casings and seatings for, Reilly, 2212.
Placing water chambers and pipes in flues, Reilly, 2212.
Various arrangements of double piping, Reilly, 2212.
Steam loaded double safety-valve, Lake (*Wilson*), 2234.
Double edged or ring safety-valves, Roxby & Pearson, 2238.
Building up multitubular, Mills (*De Naeyer & Co.*), 2416.
Expanding tool for tubes of, Carlyon & Titterton, 2464.
Internal flues and water tubes, Galloway and Holt, 2514.
Steam superheaters, Powleson, 2565.
Preventing priming in, Packman, 2574.
Regulating pressure and production of steam in, Birrell, 2604.
Safety-valve to work when water is low, Hallam & Lamb, 2607.
Stationary, with curved, &c. tubes, Renshaw (*Renshaw*), 2693.
To prevent priming & to save fuel, Renshaw (*Renshaw*), 2693.

**Steam-boilers (generating, &c.)—*cont.***

Constructing and arranging multitubular, Barton, 2789.
Increasing circulation in, Barton, 2789.
Utilising heat from lime kilns for heating, Brierley, 2800.
Combined kiln or oven and steam-boiler, Brierley, 2800.
Gauge for measuring thickness of plates, Laidler, 2824.
Making and fixing Galloway tubes, Galloway & Beckwith, 2581.
Combined with light portable engine, Moy, 2977.
Auxiliary device for opening safety valves, Hopkinson, 3036.
Punching or perforating boiler plates, Heaton, 3040.
Lagging or covering, Beamish & Mason, 3065.
Combining gas furnace with, Wedekind (*Bülowius*), 3084.
Drying or superheating chamber for, Adamson, 3039.
Self-sealing manholes, Soley (*Collinson*), 3260.
For tram-car engine to avoid smoke, &c., Porteous & Bruce, 3264.
Vertical, with corrugated compartments, Bevan, 3271.
Combining metal furnaces with, Crampton, 3283.
Increasing heating surface of tubular, Clark, 3298.
Drying or superheating steam by waste heat, Clark, 3298.
Inexplosible, for tramway engines, &c., Gendebien, 3348.
Combining with metal furnaces, Smyth, 3353.
Coupling tubes with tube plates, Bourry, 3411.
Arranging tubular, and superheaters, Gedge (*Dufour*), 3449.
Superheating steam by waste heat from, Erskine, 3450.
Spring safety-valves, Rochford, 3456.
Tube stopper for marine & other, Arrowsmith & Ferguson, 3477.
Sectional tubular to prevent priming, &c., Suckling, 3494.
Nut for connecting "heads" of sectional, Suckling, 3494.
Strengthening, &c. flues of, MacIlwaine & Lewis, 3524.
Expanding & contracting flues for, MacIlwaine & Lewis, 3524.
Vertical, for steam-launches, fire-engines, &c., Barron, 3658.
Vertical and double vertical; roof stay, Matthews, 3698.
Utilising waste heat from, for heating air, Maw, 3699.
Superheaters, and preventing loss of heat in same, Maw, 3699.
Preventing loss of and saving heat in flues, Maw, 3699.
External casing or air-heating chamber for, Stone, 3705.
Increasing heating surface in cylindrical, Okes, 3713.
Constructing and arranging fuel economisers, Twibill, 3728.
Stop-valve for steam pipes of, Pether & Heaketh, 3742.
Spring safety-valves, Adams, 3761.
Shells for; arranging tubes and flues, Lockwood, 3776.
Increasing heating surface and circulation in, Lockwood, 3776.
Combination & arrangement of marine and other, Cottew, 3805.
Preventing priming and saving fuel in, Cottew, 3805.
Bush or ferrule for fitting tubes, Walker (*Estienne*), 3810.
Centrifugal apparatus to prevent priming, Roberts, 3835.
Arranging spiral pipes or tubes in, Davies & Wilson, 3842.
Tube stopper and staying tube plates, Mace & Brewster, 3871.
Welding, &c. water tubes, internal flues, & shells, Plant, 3884.
Preventing or diminishing priming in, Clark, 3885.
Fitting partition plates in internal flues, &c., Faure, 3952.
Flues with spiral plates, Jensen (*Halsey & Deaderick*), 3994.
Drilling, tapping, and countersinking stay holes, Allan, 4058.
Inserting and cutting off screw stays, Allan, 4058.
With auxiliary heat utilizing apparatus, Wilson, 4091.
For flying machines, Smythies, 4151.
Spring lock-up safety-valves, Coe, 4343.
Mixing oil with water to prevent priming, Major, 4354.
Cramps for securing plates together, Ehrhardt, 4374.
For tram-cars, &c., and movable heaters for same, Fidler, 4377.
General construction of vertical rectangular, Wright, 4419.
Increasing circulation in vertical, Wright, 4419.
Utilising outside shell of marine, as heating surface, &c., [Dansey, 4430.
Obtaining circulation of water in marine, &c., Cooke & Myl- [chreest, 4469.
Arranging tubes in, to serve as fire-box and superheater, Bor- [done, 4491.
Constructing portable and self-contained, Keith, 4506.
The "rapid circulator and fuel economiser," Keith, 4506.
Tube stoppers for marine and other, Clark (*Walker*), 4525.
Grouping tubes in water-tube boilers, Clark, 4544.

**Steam-boilers (water-feeding; heating feed-water):**

Arrangement of feeding mechanism, Rowland, 94.
Water for, used in purifying furnace gases, Lyttle, 105.
Heating water and feeding same to, Johnson & Allan, 191.
Feed-pumps, Perkins, 234.
Arranging feed-water heater, Abel (*Smith & Smith*), 244.
Heating feed-water, Allibon & others, 264.
Heating feed-water, Lake (*Farris*), 310.
Automatic water-feeder, Barlow (*Stratton*), 407.
Feed-heaters, for utilising waste heat, Hall & others, 530.
Water-feeder and regulator, Bailey, 539.
Showing when injectors are at work, Bailey, 539.
Heating feed-water in dead-plates and fire-bars, Taylor, 607.
Combining feed heater with smoke box door, Greig & Eyth, 663.
Reconverting exhaust steam and heating same, Mosman, 751.
Injectors for, Lake (*Rae*), 976.
Automatic water-feeder and alarm, Lake (*Sulzbach*), 1049.
Automatic water-feeder, Willis, 1091.
Heating and feeding water, Walker (*Pauckch*), 1099.
Arranging fuel economisers for heating feed, Elson, 1138.
Heating feed-water, Hilton, 1208.
Heating feed-water in exhaust pipe, Saville, 1250.

**Steam-boilers (water-feeding, &c.)—*cont.***

Automatic water-feeder, Johnson (*Wertheim*), 1462.
Pumps for feeding, Willis & Pearson, 1491.
Heating and feeding water, Barlow (*Stratton*), 1528.
Self-acting feeding apparatus, Wise (*Fage*), 1532.
Feed-water heater for saving fuel, Taylor, 1747.
Tubular screw-apparatus for heating, Walker, 1886.
Feed-regulator, Bull, 2061.
To tram-car boilers and heating same, Barclay, 2201.
Placing pipes in flues for heating feed, Reilly, 2213.
Heating feed-water in condensers, Norfolk, 2258.
Purifying and drawing off water for, Macdonald, 2343.
Heating feed-water by exhaust steam, Packman, 2574.
Heating feed-water by exhaust steam, Metcalfe & others, 2984.
Injector with an extra cone for, Metcalfe & others, 2984.
Injectors for, Dixon (*Rougy*), 3117.
Heating feed-water in fire-bars, Ellis, 3128.
Heating feed-water by exhaust steam, Buckley, 3198.
Heating feed-water in fire-box, Amory, 3284.
Self-acting water-feeder, Flint & Harlow, 3376.
Force pump for & heating feed-water, Gedge (*Dufour*), 3449.
Heating feed-water by waste heat from, Erskine, 3450.
Automatic water-feeder; measuring same, Doull, 3503.
Automatic water-feeder, Newton (*Ikonnikoff*), 3590.
Automatic water-feeder; heating feed-water, Moy, 3648.
Feed-heater placed in smoke box, Matthews, 3698.
Feed-water heating apparatus, Maw, 3699.
Feed-water heaters, Twibill, 3728.
Aërating feed-water; aërating injector, Riches, 3750.
Continuous water-feed heating fire-grate, Lockwood, 3776.
Heating feed-water; self-acting feed valves, Cottew, 3805.
Forcing apparatus for feeding, Cleminson, 3849.
Heating feed-water by exhaust steam, Taylor, 3892.
Injectors for, Jackson & Jackson, 3928.
Heating feed-water by waste heat, Wilson, 4091.
Feed-water heaters, Moffatt, 4202.
Fuel-economisers for heating feed-water, Wright, 4419.
Automatic water-level regulator, Morgan (*Moskovits*), 4503.

**Steam-breaks.** *See* Breaks for railways.

**Steam-cranes.** *See* Hoists.

**Steam-engine condensers.** *See* Condensers.

**Steam-engine cylinders.** *See* Cylinders.

**Steam-engine governors.** *See* Governors.

**Steam-engine pistons.** *See* Pistons.

**Steam-engine valves.** *See* Valves.

**Steam-engines (indicating speed of).** *See* Indicating.

**Steam-engines (locomotive, marine and stationary):**

Packing for steam-chest covers and stuffing-boxes, Fish, 9.
Reciprocating, for saving steam and power, Fielden, 17.
Or fly-wheel revolved by steam impinging on it, Turnock, 51.
Rotary cellular fuel saving, Boyman, 67.
Combined hot-gas and, Boulton, 96.
Rotary and reciprocating, Higginson, 108.
Regulating flow or pressure of steam to, Cave, 141.
Working engines by hot-air and steam, Vera, 175.
Lubricating working parts of, Jeyes & Turner, 205.
High pressure marine and other, Perkins, 234.
Auxiliary engines for, to avoid waste of steam, Perkins, 234.
Combined cut-off and slide-valve, Broadbent & Westerby, 281.
Rotary; regulating expansion in same, Cory, 296.
Self-acting variable cut-off, Mitchel, 318.
Double cylinder portable and other, Hughes, 372.
Pistons and stop valve casings, Stevenson, 387.
Rotary, Johnson, 400.
Balanced slide-valves, Haseltine (*Smythe*), 422.
Slide-valve expansion gear, Cameron, 429.
Quilted fabric for covering, Gedge (*Gaudefroy*), 434.
Pistons for rotary engines, Schrebler, 477.
Increasing wheel adhesion on rails, Jensen (*Bürgin*), 506.
Rotatory, Kaulbach, 542.
Reducing back pressure in high pressure, Shaw, 543.
Combined air & gas compressor and, Richardson & Ball, 564.
Reciprocating, King (*Westinghouse*), 569.
Supplying water to tenders of locomotives, Rogers, 598.
Hydro-steam motor, Morgan-Brown (*Viglino & Donna*), 626.
Arranging reversing and expansion gear, Greig & Eyth, 663.
Steam-ploughing, traction, mining & other, Greig & Eyth, 663.
Rotary and other condensers for, Boulton, 694.
Steps for locomotives, Haseltine (*Keene & Sawyer*), 700.
Wire packing for pistons, piston rods, and valves, Keirby, 737.
Operating throttle-valve and reversing gear, Defty, 760.
Cushioning valves, Justice (*Shaw*), 793.
Combined pneumatic and steam-engine, Collingridge, 867.
Variable cut-off or expansion gear, Garforth & Walker 884.
With cylinders, &c. rotating round a fixed crank, Taylor, 892.
Expansion valves, Little, 918.

**Steam-engines (locomotive, &c.)—*cont.***

Stopping the action of, to prevent collisions, Owen, 960.
Using superheated steam expansively in, Dixwell, 1012.
Variable cut-off for superheated steam, Dixwell, 1012.
Distributing steam in cylinder engines, Boire, 1022.
Indicating working of, at a distance, &c., Boire, 1022.
Rotary, Haseltine (*Lidgerwood*), 1066.
Purging cylinders, Brown (*Gravelaine-Malorey & Coly*), 1068.
V shaped slide-valves and cover, Fawcett & Firth, 1100.
Valve for hydro-extractor engines, Broadbent, 1144.
Junction valve and expansive valve motion, Greenwood, 1171.
Rotary, Radford, 1173.
Locomotives for "post and rail," &c. railways, Haddan, 1198.
Valves; arranging and working same, Brookes (*Hoyois*), 1223.
Rotary; partly applicable to traction engines, Barlow (*Deck*), [1277.
Reversing gear for single or double, Wakefield, 1282.
For using steam expansively, Otto, 1306.
Self-acting lubricator for, Hare & Barton, 1385.
Reciprocating circular or partially rotary, Brakell, 1393.
Arranging trunk, to work expansively, Colebrook, 1414.
Arranging or combining parts of, Clough, 1417.
Traction engines and steering same, Clark (*Milliken*), 1464.
Arranging, for working pumps, &c., Willis & Pearson, 1491.
Designing and indicating working of slide-valves, Cooper, 1497.
Locomotives for tram-cars, Merryweather & others, 1513.
Increasing adhesion of wheels, Merryweather & others, 1513.
Preventing noise & visible vapour, Merryweather & others, 1513.
Disposing of exhaust steam in, Merryweather & others, 1513.
Dispensing with slide bars and blocks in, Hattersley, 1546.
Radially arranged cylinder, Payton & Holmes, 1567.
Locomotive and traction, Gratton & Beal, 1624.
Portable, combined with fire-engines, Wirth (*Knaust*), 1641.
Arranging, &c. to work economically, Courtenay, 1646.
Rotary, Newton (*Babbitt*), 1676.
For actuating paddles, Haseltine (*Edson & Silliman*), 1677.
Locomotives in sections jointed together, Jones, 1697.
Checking liveliness of bogie frames, Jones, 1697.
For using superheated steam, Trossin, 1700.
Packing working parts of, with molten metal, Trossin, 1700.
Arranging, for steam cultivation, Martindale, 1721.
Expansion gear for, and working same, Duncan, 1733.
Ejecting water from cylinders of, Montgomery, 1760.
Spring packing and anti-galvanic lubricant, Prior, 1809.
Deadening noise of exhaust in, Justice (*Shaw*), 1828.
Arresting sparks and cinders from, Justice (*Shaw*), 1828.
Conveying steam to "bogie engines," Fairlie, 1841.
Controlling speed of locomotive engines, Kleinen, 1866.
Rotary, Johnson (*Lämmerhirt*), 1867.
Packing pistons of, Clark (*Giffard*), 1889.
Rotary, Morgan, 1906.
Arranging compound, Johnson (*Allen & Alexander*), 1927.
Employing exhaust, for working breaks, &c., Bolitho, 1931.
Arranging crank and piston gear of, Legge & Richardson, 1968.
For ships' launches, river steamers, &c., Edwards, 1996.
Varying the cut-off in, Amos & Smith, 2006.
Lubricant for cylinders and pistons, Wilkins, 2012.
To avoid dead points, &c., Bruce & Antisell, 2016.
Piston rods for obviating friction, &c., Schönheyder, 2031.
Bearing springs for rail, tram, and road, Spencer, 2062.
Showing when locomotive wheels slip, Stroudley, 2086.
Arranging portable, &c. to admit of expansion, McLaren, 2097.
Wheel locking motion for portable & traction, McLaren, 2097.
Double cylinder portable, Hughes, 2103.
Single and double acting & compound rotary, Simmons, 2105.
Tram-car, locomotive, and traction, Buret de Longagne, 2107.
Equilibrium, slide, and expansion valves, Outridge, 2108.
Pistons & their packings, Clark (*Agnellet & Rothmeyer*), 2122.
Working smoke consumers by wheels of, Gedge (*Dubois*), 2175.
Variable cut-off and expansion gear, Lake (*Hlubek*), 2181.
Two piston & one cylinder arrangement of, Lake (*Hlubek*), 2181.
Working locomotive & traction, on one side only, Barclay, 2201.
Slide throttle valve gear for tram-car & traction, Barclay, 2201.
Removing priming and preserving vacuum in, Holt, 2207.
Working direct-acting, without noise, Pickering, 2247.
Preventing lateral motion of locomotives, Tilp, 2259.
Power indicators for, Darke, 2265.
Steam chests of compound, Weatherhogg (*Taylor*), 2278.
Valves; blowing cylinders of, Weatherhogg (*Taylor*), 2278.
Cylindrical rotating valves, Darlington & Thomas, 2302.
Constructing and arranging parts of, Carey & Porter, 2315.
Double cranked shafts for, Reynolds, 2323.
Purifying water for condensing, Macdonald, 2343.
Three cylinder, Parker, 2372.
Expansion slide-valves & valve cocks, Newton (*Molard*), 2383.
Double cranked shafts for, Reynolds, 2399.
Rotary, Wimshurst, 2453.
New type of reversing and non-reversing, Higginson, 2463.
Direct-acting rotary, without cranks, &c., Valle, 2470.
Double-acting rotary, Patrick, 2499.
Condensing steam in, without cold water, Packman, 2574.
Preventing noise in traction, from exhaust, Packman, 2574.
Continuous direct-action, Johnson (*Van der Elst*), 2584.
Working steam expansively in horizontal, Wilson, 2599.
Buffers for checking momentum of valves, Wilson, 2599.
Connecting pistons, &c. in, Messenger & Churchward, 2666.

**Steam-engines (locomotive, &c.)—*cont.***

Spark arrester & extinguisher, Morgan-Brown (*Halstead*), 2789.
With horizontal smoke stack, Morgan-Brown (*Halstead*), 2789.
Cooling smoke from, Morgan-Brown (*Halstead*), 2789.
Forming and packing piston and D slide valves, Beattie, 2838.
Self-acting device for shutting off steam, Dawber, 2846.
Jacketting cylinders; electric alarm for same, Dixwell, 2864.
Rotary, Tongue (*Chauveau*), 2961.
Light portable, for locomotive & tramway purposes, Moy, 2977.
Catching and utilising exhaust from, Metcalf & others, 2984.
Rotary, to avoid dead centres, Fraser, 2990.
For tramway carriages, Blockmans & Charlet, 3004.
Rotary, Weyhe, 3019.
Actuating valves; stuffing-box packing, Bridgett, 3028.
Utilising waste steam and heat from locomotive, Brown, 3037.
Three and four cylinder compound marine, Adamson, 3069.
Preventing condensation in cylinders, &c., Adamson, 3069.
Controlling rudder actuating engines, Howarth, 3112.
Without steam-chests, slide-valve eccentrics, &c., Lake (*Fuller*), 3143.
Single and compound rotary, McKim, 3144.
Forming and disposing slide-valves, Chancellor, 3158.
Reversing, &c.; valve gear for, Johnson (*Sulzer & others*), 3170.
Lubricator for locomotives, Coux des Roseaux, 3202.
Compounding non-condensing, Crosland, 3209.
Working high-pressure, at great velocity, Spartali, 3251.
Superheating steam in cylinders, Spartali, 3251.
Combined air, gas &, for tram-cars, &c., Porteous & Brace, 3264.
Auxiliary to, for obtaining circular motion, Bevan, 3271.
Rotary, Brae, 3276.
Double cylinder combined compound, Turner, 3279.
Rotary, Bartrum (*Powell*), 3316.
Combined throttle and plunger valve for, Saxby, 3326.
Converting reciprocal into rotary motion in, Turnock, 3344.
Multiple cylinder tramway, traction, &c., Gendebien, 3348.
Locomotives for tram-cars, Harding, 3378.
Rotary valves and reversing gear, Willoughby, 3378.
By pressure of steam on toothed wheels, &c., Monckton & [others, 3395.
Working slide-valves of, Gerring, 3407.
Condensers for stationary and other, Plunkett, 3466.
Combining, with double barrelled pumps, Crohn & Okes, 3466.
Surface condensers, Johnson (*Normand*), 3516.
Four-wheeled steam carriage, Touaillon (*Bollée*), 3521.
Valves of oscillating trunnion engines, Melvin, 3541.
Direct-action, for feeding boilers, Newton (*Ikonnikoff*), 3560.
Valves for compound & other, for pumping, &c., Benson (*Cope & Maxwell*), 3585.
Preventing jerk of piston at end of stroke, Cunningham, 3621.
Packing piston rods, Newton (*Constant*), 3630.
Regulating working of, Galsworthy, 3641.
Actuating cut-off or expansion valves, Woodward, 3645.
Obviating "wiredrawing" of steam in, Woodward, 3645.
Automatic suet lubricator for cylinders, Hughes, 3655.
Moveable cylinders & valve gear for, Pinfold & Browne, 3696.
Producing vacuum in cylinders of, Maw, 3699.
Power indicators for, Darke, 3702.
Rotary, Monteith, 3753.
Operating marine engine valves, Johnson (*Wolcott*), 3769.
General arrangement and construction of rotary, Moore, 3808.
Portable, for use in felling trees, Ransome, 3833.
Rotary, Vacherot, 3828.
For pumping, winding, &c., Pearn & Pearn, 3875.
Link-motion reversing gear, Millar, 3890.
Traction engines; steering same, Richardson, 3901.
Three oscillating cylinder; reversing same, Knowles, 3910.
Starting gear mechanism for, Bow, 3927.
Rotary slide-valve with distributor, Clark (*Armour*), 3972.
Valve gear for reversing, varying expansion, &c., O'Toole, 3977.
Mechanical horse worked by steam, Browne (*Chaine*), 3983.
Cut-off valves or expansion gear, Cherry, 3984.
Cushioning pistons of, Cherry, 3984.
Packing for piston rods of, Lake (*Wright & Schaible*), 3998.
Spark arresters, Clarke (*Proctor*), 4012.
Tramway and road locomotives, Hughes & Coltman, 4021.
Horizontal compound marine and land, Thompson, 4028.
Horizontal compound, for street traffic, Thompson, 4040.
Flying or aërial, Smythies, 4151.
Expansion gear for, of towing vessels, Crohn, 4184.
Valves for, to avoid links, &c., Lake (*Wolf & Wolf*), 4227.
For steering ships, Brotherhood, 4230.
Combined traction engine and steam-plough, Turner, 4232.
Distributing valves for, Earl of Caithness, 4233.
Arranging valves, &c. of compound marine, Sells, 4244.
Portable, with windlass for steam ploughing, Fox, 4246.
Spark extinguisher, Budenburg (*May*), 4256.
Rotary, Weyhe, 4298.
Metallic packing for stuffing-boxes, Brown (*Bailly*), 4329.
Fireless locomotives for tramways, underground railways, &c., [Fidler, 4357.
Indicators for high speed, Johnson (*Jouët-Pastré*), 4372.
Air-pumps for condensing engines, Fryer & Alliott, 4396.
Bogies for locomotives, Armstrong & others, 4433.
Arranging; surface condensers for same, Davie, 4449.
Rotary; reducing friction in same, Hodson, 4458.
Varitable expansion cut-off motion, Cole & Cole, 4512.

Steam-engines (locomotive, &c.)—*cont.*
Arranging parts of, to obtain equilibrium and avoid shocks, [Brotherhood, 4546.
Steam-carriages for common roads, Bünger, 4555.

Steam-gauges. *See* Gauges.

Steam-hammers. *See* Hammers.

Steaming fabrics. *See* Printing. Finishing. Dyeing.

Steam-ploughs. *See* Tilling.

Steam-pumps. *See* Pumps.

Steam-traps. *See* Valves (steam).

Steel and iron. *See* Smelting.

Steel for striking fire. *See* Matches.

Steels. *See* Knives.

Steering aërial-machines. *See* Aërial-machines.

Steering and guiding ships and boats:
Method of and gear for, steam ships, Absalom & Griffiths, 151.
Indicating position of rudder to vessels, Briebach, 313.
Lights for indicating course, Johnson (*Lamarre*), 409.
Working and controlling rudders, Napier, 1109.
Determining rule of the road at sea, Gray, 1113.
Screw or toothed worm gear, &c. for, Ittmann (*Coffin*), 1130.
Rudders for steering life-boats, Colwell, 1708.
Steam steering apparatus and valve gear, Hastie, 1742.
Signalling the course a vessel is steering, Harris, 1998.
Expanding rudders and working same, Davis, 2469.
Shipping rudders in a slot barrel or tube, Henley, 2947.
Pleasure boats by movement of body, Robinson, 2998.
Controlling rudder actuating steam-engines, Howarth, 3112.
Arranging double chain drums, &c., Lester & Hallett, 3130.
That float above water, Henderson (*Picard & Laurent*), 3369.
Propelling apparatus to facilitate, Browne, 3673.
Working and controlling rudders, Duthie, 3779.
Using steam pump propellers for, Davies & Wilson, 3842.
Working & controlling rudders, Clark (*Farcot & others*), 3845.
Screw serving as rudder for, Johnson (*Schiaffino*), 3873.
Controlling movement of steam steering engines, Bow, 3927.
Tiller handles and water anchors for raft-boats, Dunn, 4006.
By steam or fluid pressure, Brotherhood, 4230.
Increasing power in working rudders, Grellet & Cocks, 4287.
Propelling apparatus serving as rudders, Preiswerk, 4324.

Steering traction-engines. *See* Steam-engines.

Stench-traps. *See* Traps.

Stencil-plates:
Perforating sheets for autographic printing, Edison, 3762.

Stenography:
Facilitating the taking and reading of notes, Laidler, 1947.

Stentering fabrics. *See* Finishing.

Steps and bolsters. *See* Bearings.

Steps and landings. *See* Buildings.

Stereotyping. *See* Printing.

Stiffening or sizing fabrics. *See* Finishing.

Stills. *See* Boilers (miscellaneous).

Stilts. *See* Games.

Stirring. *See* Mixing.

Stirrups. *See* Harness.

Stocking supporters. *See* Garters.

Stockings (knitting). *See* Knitting.

Stockings (paper). *See* Socks.

Stocks and dies. *See* Screws.

Stokers (mechanical). *See* Furnaces.

Stone; marble; slate:
Breaking and crushing stones, Bradley & Madderson, 63.
Percussive sawing machinery, Payton & Holmes, 348.
Flexible or elastic casts for imitating, Loewenberg, 420.
Grinding, &c. lithographic and other, Salmon & Crosland, 561.

Stone; marble; slate—*cont.*
Cutting, dressing, planing, turning, and shaping, Brunton, 702.
Cutting or carving in stone, Notton, 743.
Crushing or disintegrating, Milburn & Jackson, 933.
Polishing slabs of marble or other stone, Butler, 1177.
Grooving slate for paving steps, floors, &c., Elwes, 1386.
Machine for chipping or dressing, Brakell, 1393.
Diamond tool for planing or shaping, Young & Thomson, 1509.
Working saws for cutting, Payton & Holmes, 1567.
Combining glass, &c. for casing, D'Humy, 1710.
Tools, &c. for cutting stone, slate, and marble, Munro, 1713.
Millstone dressing machine, Whittingham, 1820.
Compound for and producing imitation, Loewenberg, 1837.
Self-grinding stone dressing machine, Young, 1880.
Tools & machinery for cutting & dressing, Dunlop & Ree, 1890.
Tools, machinery, &c. for cutting and dressing, Adamson, 2021.
Forming solid artificial, Cooke & Thompson, 2196.
Forming "swing jaws" of stone breakers, Haden, 2711.
Forming extra cubing pieces on stone breakers, Haden, 2711.
Forming jaws of stone breakers, Marsden, 2717.
Cutting or carving in stone, Notton, 2791.
Millstone dressing tool or apparatus, Beynon, 3113.
Hand apparatus and tools for working in stone, Beynon, 3113.
Dressing, surfacing or shaping stone, Tweeddale, 3392.
Working tables of slate-working machinery, De Winton, 3455.
Diamond machine for dressing, &c., Henderson, 3561.
Diamond holder for sawing stone, Lake (*Branch*), 3677.
Artificial hearthstones, Hall, 3712.
Stone polishing machinery, Liddell, 3782.
Fixing cutters in holders or tools for cutting, Munro, 3864.
Applying emery for dressing, shaping, &c., Young & Brown, [3887.
Cutting or dressing & planing or turning, Dunlop & Ree, 4120.
Fluting, roughing, polishing & moulding, Dunlop & Ree, 4120.
Working, planing, or facing, Brearley & Marsden, 4173.
Cutting, drilling, engraving, or carving, Lawrence, 4398.
Compound for making artificial stone, Ducournau, 4444.

Stone (quarrying). *See* Mining.

Stop-cocks. *See* Cocks.

Stop-motions. *See also* Breaks for machinery:
For broad or small-ware looms, Burlock (*Chapman*), 59.
For thread winding machinery, Loewenstein & Ward, 78.
For doffing cylinders of carding-engines, Flitcroft, 102.
For sizing and dressing machines and looms, Lancaster, 250.
For warping and beaming machines, Lancaster, 250.
Self-acting, for carding-engines, Topp & others, 283.
For screw-cutting machines, Taylor, 321.
Back stop-motion for drawing frames, &c., Elce, 366.
For frames when bobbins are full, Bradley & Walbank, 389.
For drawing frames when cans are full, Tomlinson, 401.
Throwing sewing-machines out of gear, Dennis, 413.
For wool-combing and preparing machines, Wyrill, 648.
Knocking-off motion for looms, Whyte, 784.
For looms, Collier & Marsden, 790.
For spooling machines, West, 845.
For looms, Clark (*Isherwood*), 1006.
Weft stop mechanism, Hall & Hobson, 1055.
Stopping winding machines when threads break, Bash, 1257.
For winding before doubling, Stubbs & Corrigan, 1717.
For looms, Ziffer, 1730.
For stentering or finishing woven fabrics, Pollock, 1833.
For throstle doubling frames to prevent laps, Moscrop, 1963.
Throwing combing-machines out of gear, Whitehead, 1991.
For use in doubling yarns, Smith & Smith, 2035.
For looms, Singleton, 2176.
For winding doubling frames, Unsworth, 2341.
Self-acting, for lifts, &c., Clark (*Mason*), 2478.
For sugar presses, Bousfield (*Kohrig & Pzillas*), 2486.
For sewing and light machines, Lake (*Lane*), 2615.
Self-acting, for knitting machinery, Frith, 2648.
Self-acting, for knitting machinery, Frith, 2971.
Electric, for use in spinning, &c., Bullough & Smalley, 3002.
For throstle doubling frames, Whalley & Weild, 3014.
Electric, for use in spinning and weaving, Wilkinson, 3038.
For spinning machines, Keats & others, 3123.
For small-ware looms, Burlock (*Chapman*), 3218.
For machines for cutting pile of fustians, &c., Burley, 3328.
For doubling and winding machines, Smith, 3342.
For combing-machines, Knowles, 3474.
For doubling and twisting frames, Benson (*Wicks*), 3537.
For warping-machines, Henderson (*Moulton & others*), 3916.
For sacking or heavy fabric looms, Haworth & Thomson, 3937.
For doubling winding frames, Raworth & Raworth, 3968.
Of drawing frames, Kaberry, 4071.
For looms, Singleton, 4315.

Stoppers for bottles. *See* Bottle-stoppers.

Stoppers for jars. *See* Jars.

Stoppers or plugs for tubes. *See* Pipes.

Stopping machinery. *See* Breaks for machinery.

Stopping or restraining horses. *See* Harness.

Stopping railway trains. *See* Breaks for railways.

Store-rooms. *See* Buildings.

Storing mineral oils. *See* Oils (mineral).

Storing gunpowder. *See* Magazines.

Stoves. *See* Fire-places.

Strainers; straining liquids. *See* Filters.

Straps:

Securing loops to leather, Lake (*Bray*), 100.
Preserving yarns, &c. for making, Clark (*Rogé & others*), 238.
Warp fabrics for, and method of making, Boucley, 451.
Handles for rug, shawl, parcel, and other, Evans, 552.
Fastening shoulder straps to strap handles, Evans, 553.
Snap-hooks for, Johnson (*Nye*), 765.
Snap-hooks for, Johnson (*Nye*), 766.
Dressing or preparing leather for, Tombs, 2333.
Fastenings for joining or uniting, Pearce, 3083.
Fasteners for, Mappin, 3832.
Leather covered handles for rug, Myring, 4097.

Straps or belting. *See* Bands and belting.

Straw (dyeing). *See* Dyeing.

Straw goods (imitation):

Flexible or elastic casts for, Loewenberg, 420.

Straw-elevators. *See* Stacking.

Straw-shakers. *See* Thrashing.

Streets (cleansing and sweeping). *See* Roads.

Stretchers or litters. *See* Ambulances.

Stretching fabrics. *See* Drying. Finishing.

String. *See* Ropes.

String organs. *See* Musical instruments.

Strong-rooms. *See* Safes.

Strophometers. *See* Indicating speed.

Struts (mining). *See* Mining.

Studios (photographic). *See* Photography.

Studs and solitaires. *See* Buttons.

Studs or stud-bolts. *See* Bolts.

Stuffing-boxes:

Compound material for packing, Fish, 9.
For air or gas springs, Dick (*Giffard*), 55.
Water, for rotary cellular engines, Boyman, 67.
For axle-boxes, North (*Tomlinson*), 130.
Packing, of air break apparatus, &c., Steel, 333.
For couplings for broken shafts, &c., Turner, 426.
Packings for, of air break and cylinders generally, Steel, 623.
For variable power hydraulic cranes, Walker & Pflaum, 719.
Self-lubricating packing for, Newton (*Murfey*), 1025.
Spring packing for, Prior, 1309.
For cold producing machines, Clark (*Giffard*), 2064.
For pistons of rock drills, Reynolds, 2287.
Metallic packing for, Bridgett, 3028.
Lubricating air-engine and other engine glands, Holt, 4316.
Metallic packing for, Brown (*Bailly*), 4329.
For pumps used in making aërated waters, Vaughan, 4466.

Submarine cables. *See* Telegraphs (electric).

Submarine works:

Sinking cylinders for foundations, Munn & others, 419.
Floating breakwaters to be used in forming, Saunders, 1015.
Dredging apparatus for, Woodford & Woodford, 1531.
Forming foundations for, on sand, Cooke & Thompson, 2196.
Sinking cylinders for foundations, Munn, 2743.
Anti-fouling compound or composition, Martin, 4006.
Fireless steam-engine for use in, Fidler, 4377.

Subways and tunnels. *See* Tunnels.

Suckling young animals. *See* Feeding.

Sugar and syrups:

Crushing refined, Cole, 110.
Defecating saccharine solutions, Johnson (*Merot*), 408.

Sugar and syrups—*cont.*

Producing saccharine matter, Manbré, 579.
Charcoal for decolorising saccharine liquids, Elcock, 867.
Method and apparatus for making glucose, Johnson, 816.
Bunsen pump for evaporating, Morgan-Brown (*Hagemann*), [964.
Evaporating sugar juice, Morgan-Brown (*Hagemann*), 965.
Splitting sugar-cane, Johnson (*Mignon & Rouart*), 972.
Utilizing cane trash, Johnson (*Mignon & Rouart*), 973.
Producing glucose or grape sugar, Lessware, 1063.
Purifying raw or partly refined, Smith, 1136.
Refining, Newton (*Matthiessen*), 1234.
Cutting up sugar loaves, Burton, 1375.
Filling and liquoring, in moulds, Newton (*Matthiessen*), 1439.
Making glucose or grape, from rice, &c., Pearse, 1499.
Extracting juice from canes, &c., Hunt (*Reynoso*), 1568.
A "speciality malt sugar" for brewing, Manbré, 1734.
Covers or wrappers for sugar loaves, Smieton, 1731.
Reducing and liquefying cane sugar, &c., Richardson, 1774.
Substitute for "monte jus," Clark (*Worms de Romilly*), 1840.
Deodorising blood for refining, Smith, 1855.
Tubular screw-apparatus for refining, Walker, 1898.
Making glucose and syrup from maize, Clark (*Chiozza*), 2067.
Waterproof packages for, Newton (*Requa*), 2075.
Magnetic sugars, Darlow & Fairfax, 2102.
Filters for decolorising, in solution, Elwes, 2189.
Centrifugal machine for treating, Fryer & Alliott, 2225.
Roller machine for cutting, Dann (*Leduc*), 2301.
Aromatizing, with medicinal aromas, Hyatt, 2367.
Making "caramel" from bran in roasting coffee, Hyatt, 2367.
Air current inductor for cooling, Wawn & Willcox, 2369.
Making lumps or bars of, Bousfield (*Kohrig & Prillas*), 2386.
Reducing sugar-cane, Johnson (*Mignon & Rouart*), 2647.
Utilizing sugar-cane trash, Johnson (*Mignon & Rouart*), 2647.
Receptacle for, for table use, Green, 2896.
Inodorous furnaces for evaporating molasses, Rabot, 2925.
Revivifying bone black, Clark (*Gandolfo & Jarboe*), 2929.
Bone black cooler & heater, Clark (*Gandolfo & Jarboe*), 2929.
Moulding or compressing, Clark (*Gandolfo & Jarboe*), 2929.
Sealing mouths of filters, Soley (*Collinson*), 3260.
Producing glucose or grape sugar, Lessware, 3338.
Extracting sugar from sugar cane, Allport (*Espeut*), 3465.
Utilizing residual products, Allport (*Espeut*), 3465.
Retort for reburning animal charcoal, Lyttle, 3379.
Covers for sugar loaves of paper cloth, Smieton, 3684.
Pans and producing vacuum in and packing same, Maw, 3688.
Centrifugal machine for purifying, Duncan & Newlands, 4187.
Bleaching and decolorizing cane juice, True, 4165.
Defecating saccharine products, Duncan & others, 4204.
Crystallizing, Blair & Turnbull, 4277.
Purifying raw or impure, Rowan, 4331.
Sugar-cane mill ("duplex two roll mill"), Chapman, 4411.

Sulphates and sulphides (alkaline). *See* Alkalies.

Sulphates & sulphides (metallic). *See* Metallic salts.

Sulphates of magnesia, baryta, and lime. *See* Mag- [nesia. Baryta. Lime.

Sulphide of mercury (red). *See* Mercury.

Sulphur:

Obtaining, from residues in separating lead, &c., Tanner, 273.
Treating sulphur ores, Croll, 1307.
Grinding, crushing, &c. by centrifugal force, Lucop, 1459.
Distilling, purifying, and refining, Ross, 1807.
Calcining poor and other ores for obtaining, Barnard, 2712.

Sun-dials. *See* Clocks.

Sunk devices (producing). *See* Engraving.

Sunken ships (raising). *See* Ships (raising).

Sun-shades and parasols. *See* Umbrellas.

Sun-shades or sun-blinds. *See* Window-blinds.

Superheating steam. *See* Steam-boilers.

Supports (overhead):

For swimmers, skaters, partially submerged bodies, and [children when learning to walk, Wrigley, 2262.

Surgery; surgical instruments:

Medicated or medicinal discs, Barker, 1152.
Abdominal belts, Wymer, 1463.
Needles for use in, Oppenheimer (*Holland*), 1767.
Elastic looped fabrics for, Keywood, 1834.
Syringes for curing diseases, cleansing, &c., Prince, 2373.
Magneto-electric apparatus for use in, Kilner, 2904.
Magnetic abdominal belts, Whiting, 3346.

**Surgery; surgical instruments**—*cont.*
Metallic compound for sharpening, Workman, 3515.
Abdominal belts of paper, Loder, 3531.
Trusses, and pads and coverings for same, Hilliard, 3692.
Piles or batteries for use in, Lake (*Van Tenac*), 4206.

**Surveying instruments.** *See* Mathematical.

**Suspenders for crockery-ware.** *See* Earthenware.

**Suspenders for dresses.** *See* Dresses.

**Suspenders or braces.** *See* Braces.

**Swaging metals.** *See* Forging.

**Sweeping chimneys and flues.** *See* Flues.

**Sweeping lawns.** *See* Garden implements.

**Sweeping roads and paths.** *See* Roads (cleansing).

**Sweetmeats.** *See* Confectionery.

**Swimming; imparting buoyancy:**
Floating costume and propellers for same, Boyton, 1644.
Using life-saving apparatus for recreation, Colwell, 1708.
Bathing gown for ladies, Lloyd, 2235.
Shoe or foot paddle for bathing and, Rowley, 2794.
Corset and costume for bathing and, Crisp, 2974.
Life-saving waistcoat for bathers, Schönrock, 3086.
Hand and foot swimming plates and flippers, Dunlop, 3236.
Overhead support for use in learning, Wrigley, 3283.
Self-inflating bathing gowns, &c., Lloyd, 3801.

**Switches and points (railway).** *See* Railways.

**Swivels (watch chain).** *See* Jewellery.

**Swords.** *See* Bayonets.

**Syringes:**
Impregnating device for volatile substances, &c., Wheeler, 1592.
For curing diseases, cleansing deep wounds, &c., Prince, 2573.
Garden, with double rose and relief valve, Shaw, 3272.
Using brush handles for syringing, Sutherland, 4344.

**Syrups and sugar.** *See* Sugar.

## T.

**Table-covers:**
Edging scolloped borders of, Gedge (*Cornely*), 306.
Fabric for covering side tables, Paton, 3119.

**Table-mats.** *See* Mats.

**Tables.** *See* Furniture.

**Tackle for raising and lowering.** *See* Hoists.

**Tacks and nails.** *See* Nails.

**Tallies for goods delivered.** *See* Registering.

**Tallow.** *See* Oils (animal).

**Tanks.** *See* Cisterns.

**Tanning hides; treating spent tan.** *See* Leather.

**Tape-measures.** *See* Measures.

**Tapestry:**
Dyeing or reviving silk, Petitdidier, 1094.

**Tapping screws.** *See* Screws.

**Taps and stop-cocks.** *See* Cocks.

**Tar; tarring:**
Apparatus for distilling, Dudgeon, 33.
Obtaining, from fæces, Newton (*Sindermann*), 1216.
From spent tan, Murdoch (*Hounsoij*), 1397.
Utilising hydro-carbons in gas tars, Aitken & Young, 2723.
From sea-wrack, &c., Dufrené (*Glaisot frères*), 2815.
Distilling, Dudgeon, 3037.
Obtaining tarry liquids, Lyttle, 3579.
Machine for applying, Paget, 3661.
Obtaining tarry products from sewage, Slater, 3668.
Collecting, in distilling coal, &c., Johnson (*Hayard*), 3759.
Tarring canvas and paper for packing goods, McLaine, 4109.

**Targetier.** *See* Games.

**Targets for rifle practice:**
For showing position of each shot, Haseltine (*Bennett*), 2253.
Compound for making, Wilkinson, 4267.

**Tarpaulins; waggon sheets or covers:**
Preserving cart tilts, Clark (*Rogé & others*), 288.
Coating or dressing waggon-covers or sheets, Mowbray, 2736.
Adjustable tilts or coverings, Slater, 3391.
Duplex shuttle machine for sewing tilts, Coignard, 3767.

**Tawing and dressing skins.** *See* Leather.

**Tea; tea-pots; tea-urns; tea-caddies; cosies, &c.:**
Metallic handles for pots, Garfield, 664.
Coverings for tea chests, Lipman, 781.
Using a decoction of, in making biscuits, Hart, 1219.
Making tea-pot handles, Hart, 1653.
Lids and spouts for teapots, Topham & Snushall, 1821.
Covers for earthenware tea-pots, Mariotti, 1876.
Rolling or crimping tea leaf, Haworth, 1959.
Rolling leaf tea, Lyle (*Lyle*), 2010.
Decorating tea-caddies with looking glass, Burton, 2303.
Grinding, and collecting same in form of dust, Hyatt, 2307.
Cosies and mats for tea-urns, Cadman, 2580.
Annealing glass for tea-pots, Monckton, 3307.
Using a decoction of, in making biscuits, Hart, 3434.

**Teaching:**
Object frame for schools, Haseltine (*McVicar & McVicar*), 27.
Mounting and operating globes for, Fitz, 187.
Stand for holding blackboards, Furrell (*Browne*), 241.
Earth, sun and planet instruments for, Newton (*Allen*), 1423.
And demonstrating metrical system, Level, 1656.
Mounting school lesson sheets on plates, Tucker, 1734.
Numerical toy for, arithmetic, Jewitt (*Rose*), 2277.
Facilitating calculation of figures, Bottone, 2361.
Piano, &c. ("The desideratum"), Atha & Terry, 3986.
Desk or frame for holding copies for, Jewitt (*Rose*), 4405.

**Teazers or willeys.** *See* Spinning (batting).

**Telegraph forms:**
Detachable limit or value stamps for, Cooper, 728.

**Telegraphs (acoustic):**
Speaking tubes of small bore, Reith, 963.
For domestic purposes, Benjumea, 2914.

**Telegraphs (electric):**
Commutating key and receiving instrument, Stockman, 255.
Transmitting signals through cables, &c., Stockman, 255.
For working railway signals, Harper, 336.
Duplex and quadruplex or multiplex, Edison, 384.
Relays or peckers, Allan & Brown, 525.
Working railway signals, Sykes, 662.
Artificial line or balance, Taylor & Muirhead, 684.
Electric condensers and resistances, Taylor & Muirhead, 684.
Duplex telephone & sounder or printer, Johnson (*Gray*), 974.
For signalling between trains and stations, &c., Bondi, 1075.
Duplex printing telegraphs, Coddington (*Gally*), 1128.
For signalling between trains in motion, &c., Glossop, 1200.
For signalling between trains and stations, &c., Wynne, 1493.
For railway signalling, Vispé & Nisbeth (*Brunius*), 1666.
Insulating and braiding wires or cables, Ewen & James, 1719.
Magnets for actuating sounders, &c., Faulkner, 1800.
Applying "nicolline" for preserving posts, Nicoll, 1933.
Insulating and coating wires, Field & Talling, 1938.
For signalling between trains and stations, &c., Calvert, 2034.
Compound for insulating wires, Greening, 2059.
Signalling between trains and stations, De Bejar y O'Lawlor & Calvo, 2101.
Preserving posts, Gedge (*Richard*), 2144.
Metal earth plates for, and fixing posts, Oppenheimer, 2240.
Circuits for, Clark (*Sawyer*), 2351.
Electro-magnetic, Bonneville (*Boyle*), 2395.
Arranging materials in making deep-sea cables, Lucas, 2633.
Circuit closers for railways, Clark (*Rousseau*), 2657.
Method of giving signs or signals, Wheatstone, 2771.
Constructing mercurial relays, Wheatstone, 2771.
Circuit closers for, McEvoy, 2786.
Automatic chemical to avoid blurrs, Morley (*Godenar*), 2803.
Receiving, recording, & transmitting, Anderson & others, 2844.
Automatic regulator for printing, Billet, 2919.
Magneto-electric apparatus for, Kilner, 2996.
Multiple printing telegraph; combiner, Baudot, 3026.
For signalling on railway trains, Whyte, 3131.
For use between trains and stations, &c., Gilbee (*Bondi*), 3335.
Galvanic battery for, Fuller & Fuller, 3340.
Producing uniform currents for, Lake (*Fuller & Crandall*), 3364.
Duplex telegraphy, Muirhead, 3374.
Automatic combined key switch, Ladd (*Jamieson*), 3600.
Using break communications for telegraphing, Ward, 3617.
Forming cables, Lackersteen, 3666.

**Telegraphs (electric)—*cont.***

Magneto-electric type printing and A. B. C., Zanni, 3795.
Serving cables, Phillips & Johnson, 3798.
Increasing speed in long cables, &c., Fitz-Gerald, 3807.
Polarized relays, Theiler & Theiler, 3976.
Light submarine cables: insulating, Henley, 4115.
Buoy for anchoring cables, Clark (*Courtenay*), 4148.
Piles or batteries for, Lake (*Van Tenac*), 4206.
Casting flanged posts, Roberts, 4278.
Employing clamps for joining wires, Smith, 4384.
Autographic or copying, Clark (*Sawyer*), 4426.
Quadruplex, Benson (*Olmsted*), 4482.

**Telegraphs (hydraulic):**

Construction and arrangement of, Norton & Lyle, 3343.

**Telegraphs (pneumatic):**

Combined galvanic and, for hotels, &c., Lake (*Wippern*), 2509.
Or signalling apparatus, Canning & Joel, 2518.
Construction and arrangement of, Norton & Lyle, 3343.

**Telegraphs (printing).** *See* Telegraphs (electric).

**Telemeters:**

Range finder for field service, Johnson (*Berdan*), 1910.
Ascertaining and indicating distances, Young & others, 2697.

**Telephones.** *See* Telegraphs.

**Telescopes.** *See* Optical instruments.

**Tell-tales:**

Or registering clocks, Theiler & Higgins, 423.
For pneumatic railway breaks, Smith, 875.
Till or receptacle for money, Griffin, 1227.
Watchman's time detector, Wainwright, 1245.
Number and fare, for vehicles, Flynn, 4119.

**Tempering glass.** *See* Glass.

**Tempering metals.** *See* Annealing.

**Templates for cutting, &c. soles.** *See* Boots.

**Templates used in sewing.** *See* Sewing.

**Temples for looms.** *See* Weaving (temples).

**Tenacious vulcanite.** *See* India-rubber.

**Tenoning, mortising, and slotting.** *See* Cutting.

**Tentering fabrics.** *See* Drying. Finishing.

**Tents; huts:**

Preserving canvas of, from decay, Clark (*Rogé & others*), 288.
Portable sheds or, Speyer, 305.
Covering for tents and portable huts, Block, 718.
Overseam sewing-machine for making, Boone & Detrick, 2553.
For canteens used in campaigning, Gedge (*Mamens*), 2924.
Constructing and withdrawing coverings of, Slater, 3391.
Duplex shuttle machine for sewing, Coignard, 3767.
Water-proofing materials for making, Clamond, 4176.

**Terne-plates.** *See* Coating metals.

**Terrets and hame draughts.** *See* Harness.

**Terry fabrics (weaving).** *See* Weaving carpets.

**Tesserse:**

Making, from colored cements, mortars, &c., Hyatt, 2015.
For ornamenting buildings, Hyatt, 2015.
Encaustic tiles usable as, Hyatt, 4063.

**Testing and localising leaks in tubes.** *See* Pipes.

**Testing and training dogs.** *See* Dogs.

**Testing strength and ductility of metals, &c.:**

Wires, bars, girders, &c., Carrington, 3419.

**Testing-cock for gas-works.** *See* Gas-making.

**Textile-waste.** *See* Rags.

**Theatrical performances:**

Jumping & trapese apparatus; trees, &c. for same, Dando, 3067.
Compounds for theatre fire-works, Dittmar, 3088.
Gymnastic apparatus for theatres, Oliver, 3366.
Hydraulic machinery for working scenery and stage apparatus, Brown, 3593.
Producing artificial water-falls, &c., Brown, 3593.
Shooting or propelling performers from cannons, Hunt, 4404.
Shooting actors from cannons, Farini, 4446.

**Theodolites.** *See* Mathematical instruments.

**Thermo-collectors.** *See* Photo-thermo, &c.

**Thermo-electric apparatus.** *See* Electricity.

**Thermometers; pyrometers:**

Ascertaining temperature of hot blasts, Main, 127.
Temperature indicator and alarm for ships, &c., Bassot, 945.
Pyrometric regulator for steam-engines, Dixwell, 1612.
Indicating temperature of superheated steam, Dixwell, 1612.
Cylinder pyrometer or heat measurer, Dixwell, 1612.
Ascertaining temperature of fluids, Diplock, 1434.
Pyrometer bars of twisted composite metal, Wood, 1832.
Bell pyrometer for evaporating pans, Bull, 2061.
Pyrometer for use in reburning charcoal, Lyttle, 2406.
Radiometer or thermometer, Crookes, 2860.
For thermo-regulators, Mori, 3904.
Clock for indicating temperature, Stanley, 4130.
Metallic pyrometer for furnaces, Huet, 4235.
Combined instrument with thermometer, &c. (The "memsor"). [Henderson, 4268.
Protecting divisions, &c. of clinical, Webster, 4454.

**Thermo-regulators.** *See* Heating, obtaining heat.

**Thinning root crops.** *See* Tilling.

**Thrashing machines:**

Drum protectors and self-feeding apparatus for, Marshall, 162.
Beaters for the drum or concave of, Gray, 1426.
Self-acting drum guard for steam, Wilders, 1442.
Combining straw elevators with portable, Greig, 1453.
Drum feeding apparatus for, Holben & Fison, 1605.
Increasing power apparatus for, Henderson (*Vaillant*), 1854.
Feeding devices & drum guard for, Shackler & Newman, 1969.
For thrashing corn as collected, Spence (*Zalewski*), 2104.
Combined collecting, conveying, and, Spence (*Zalewski*), 2104.
Elevators for raising cavings from, Chibnall, 2159.
Combined drum guard and feeder for, Fison, 2431.
Combining chaff-cutting apparatus with, Perkins, 2439.
Straw shakers of, Brinsmead, 3700.
Drum protectors for, Barnes, 3829.
Combined grain cleaners &, Morgan-Brown (*Rose & Rose*), 4338.
Cleansing, for other grain, Morgan-Brown (*Rose & Rose*), 4338.
Separating produce of, Morgan-Brown (*Rose & Rose*), 4338.

**Threading needles.** *See* Needles.

**Threading screws.** *See* Screws.

**Threads & yarns.** *See also* Finishing. Sizing, &c.:

Preserving, from decay, &c., Clark (*Rogé & others*), 288.
Compressing yarn before warping and weaving, Cox, 668.
Damping cops or bobbins of yarn, Holland, 886.
Treating yarns upon cops, Wirth (*Goshrung*), 1135.
Compressing yarn in cops, &c. for sewing-machines, Cox, 1668.
Card for putting up thread, Haseltine (*Sutro*), 1470.
Recovering, from discarded healds, Booth & Watson, 1716.
Casing or envelope for cops of cotton, &c., Pickard, 1968.
Treating sewing threads with paraffin, wax, &c., Forster, 1989.
Preserving and water-proofing, Vaughan (*Hostelaré*), 2282.
Yarn for warp thread, Henderson (*Collière & Co.*), 2730.
Extracting and recovering oil or grease from, Sykes, 2882.
Making cable laid cords, heat & others, 3128.
Cleaning and laying threads by friction, De Pass (*Imbs*), 3853.
Preparing yarn from silk noil, &c. for weft, Sharp, 4129.
Water-proofing and preserving, Clamond, 4176.

**Throstle-frames.** *See* Spinning.

**Throwing out of gear.** *See* Stop-motions.

**Tickets; ticket-holders:**

Inscribed, for hats and umbrellas when deposited, Mallet, 140.
Railway, admission, and other, Cooper, 728.
Detachable limit or value stamps for, Cooper, 728.
Printing weight on, in weighing-machines, Chameroy, 838.
Printing and numbering, Beech, 1384.
Hand alarm register for tram-car, &c., Doolittle, 1484.
Mounting, on zinc, iron, and other plates, Tucker, 1734.
Railway, steam-boat, and other station, Lake (*Ross*), 2034.
Railway, boat, and other through or coupon, Lake (*Ross*), 2071.
Dating and stamping, without ink, Waugh, 2692.
Numbering, printing, and collating, Wilson, 2783.
Holder for railway, to attach to chain, &c., Russell, 2870.
Combined holder and fastener for, Holme, 3276.
Box for distributing or delivering, Semple, 3968.

**Tidal-power machines.** *See* Water-power engines.

**Tides:**

Showing & signalling the rise & fall of, Morris & Hunter, 2882.
Indicating and recording tidal movements, Kennedy, 3348.

Tightening driving belts. *See* Bands and belting.

Tiles; quarries:
Moulding and expelling air from, Whittaker & others, 73.
In combination with lattice framing, Rideal, 113.
For use in making fire-proof flooring, Swarbrick, 491.
Making from millboard, Scoffern & Tidcombe, 827.
Moulding, roofing, paving, & other, Smith & Goodfellow, 853.
Kilns or ovens for firing, Malpas, 1064.
Dove tailed facing, for walls and roofing, Conway, 1292.
Moulding and pressing, Coward, 1381.
Imitation "falence parisienne," Gedge (*Guelton & Co.*), 1553.
Making ornamental and facing, D'Humy, 1710.
Moulding and compressing, Craven, 1732.
Making, from colored cements, mortars, &c., Hyatt, 2015.
For ornamenting buildings, Hyatt, 2015.
Tile presses, Jensen (*Schlickeysen*), 2124.
Hollow, for walls, piers, or arches, Prestage, 2160.
Decorating, and rendering same imperishable, Brock, 2282.
Heating kilns for burning, by means of gases, Batchelar, 2299.
For weather-proofing roofs, Hyatt, 2359.
Making, in imitation of laid brick, Hyatt, 2359.
Alphabet, for fronts of buildings, Hyatt, 2359.
Making and applying fire-proofing, Hyatt, 2359.
For drying floors of malt & other kilns, Woods, 2942.
Pressing and moulding flooring and roofing, Duncan, 3034.
Heating, pugging, drying, and cutting clay for, Prestage, 3192.
Pug-mill and compressing apparatus for making, Pollock, 3235.
Composition for & making quarries &, Tebbutt & Wade, 3363.
Compressing, to avoid cracks, Clayton, 3389.
Moulding, from slag run direct from slag hole, Caddick, 3467.
Moulds for making; lubricating same, Hamblet & Davies, 3556.
Moulding, from slag run direct from furnace, Caddick, 3640.
Moulding and cutting flat, Murray, 3768.
Pressing or moulding roofing or flooring, Boulton, 3980.
Weather facing; ornamental and inlaid, Hyatt, 4063.
Hydraulic, cement, encaustic, glazed, & indented, Hyatt, 4063.
Bulging, abutting, and flat roofing, Hyatt, 4063.
Compound or material for, glaze for same, Baggeley, 4067.
Moulding or pressing; releasing same, Craven & Craven, 4191.
Drying or partially drying, Jackson, 4219.
Continuous kilns for burning tiles; heating same, Stone, 4451.
Pressing roofing and other, Brewer (*Muchin*), 4464.

Tilling and cultivating; hoeing, thinning, shaw-[ing, &c. roots and crops:
Combined extirpator or grubber & sower, Gedge (*Dufour*), 20.
Steam ploughing engines, Greig & Eyth, 663.
Attaching blades to triangular hoes, Lee, 991.
Hauling apparatus and anchors, Howard & Bousfield, 1024.
Plough or cultivator for use in hop fields, Barton, 1391.
Thinning turnips and other plants, Dickie & Dickie, 1430.
Balance ploughs and cultivating implements, Greig, 1563.
Combining implements with traction engines, Clarke, 1589.
Convertible implements and rooting up stones, Clarke, 1589.
Increasing power apparatus, Henderson (*Vaillant*), 1654.
Single, double, and triple turn-wrest ploughs, Huxtable, 1687.
Engine, boiler, tackle and carriage for, Martindale, 1721.
Arranging double ploughs and gearing, Martindale, 1721.
Automatic pulley anchor carriages, Savage, 1737.
Forming socket eyes on planters' hoes, Chapman, 1823.
Horse-hoes applicable as drills, Hircock & Hempsted, 1851.
Horse hoe for thinning, &c. root & grain crops, Mitchell, 2186.
Hoeing cereals, moulding up & splitting ridges, Mitchell, 2186.
Grubbers; strengthening wheels of same, Craig, 2190.
Using grubbers for ploughing, Craig, 2190.
Clod crushers for use between growing crops, Gray, 2264.
Hoeing and thinning turnips and other crops, Hughes, 2326.
Hoeing or thinning turnips and other plants, Pirie, 2496.
Digging & collecting potatoes, Heydemann & Klinkmann, 2659.
Turnip thinning machine, Bickerton & Bickerton, 2686.
Rooting and shawing turnips, Bickerton & Bickerton, 2686.
Balance ploughs, Blyth, 2708.
Thinning out turnips, &c., Shearer & Williamson, 2716.
Thinning turnips and other root crops, Alsop, 2816.
Hand hoes, Lake (*Johnson & Richardson*), 3126.
Ploughs for breaking up and cleaning land, Corbett, 3135.
Plough for lifting potatoes; guiding same, Corbett, 3135.
Bending links for chain harrows, Denton, 3438.
Self-moving anchors, Hayes, 3627.
Ploughs, Gedge (*Rabach*), 4024.
Potato digger separators, Aspinwall, 4163.
Adjusting horse or steam hoe blades, Turner, 4212.
Combined traction engine and steam plough, Turner, 4232.
Engine for drawing harrows and rolling land, Turner, 4232.
Topping and tailing turnips, &c., Hunter, 4234.
Windlass for working ploughs; break for same, Fox, 4245.
Multiple furrow ploughs, Burton & Greig, 4453.
Turnip topping and tailing machine, Ross, 4507.

Tills or receptacles for money. *See* Money tills.

Tilts (cart). *See* Tarpaulins.

Timber (felling). *See* Plants.

Timber or wood. *See* Wood.

Time-keepers. *See* Clocks.

Tin and terne plates. *See* Coating metals.

Tin and tin ores. *See* Smelting.

Tinning metals. *See* Coating metals.

Tins (provision and other). *See* Cans.

Tip-carts, tipping waggons. *See* Carriages.

Tippets. *See* Muffs.

Tipping coal trucks. *See* Railway carriages.

Tips or toe-caps for boots and shoes. *See* Boots.

Tires (wheel). *See* Wheels for carriages.

Tobacco; snuff; cigars; smoking appliances:
Means for lighting cigars, &c., Perry & Jones, 12.
Pipes, cigar and cigarette tubes, De Burgh, 106.
Implement for punching holes in cigars, Lewis, 137.
Holding and igniting matches or fusees, Cadogan, 328.
Sliding pipe probes and handles for same, Devenport, 483.
Making and moulding clay pipes, Rankin, 942.
Combined case for pipes, cigars, matches, &c., Banford, 946.
Pipe covers for regulating draft, &c., Wade, 1057.
Pouch or receptacle for, Birnbaum, 1062.
Moulds for shaping cigar bunches, Oswin, 1188.
Appliance for fitting in pipe bowls, Eckhold, 1237.
Compressing and serving or binding, Irvine, 1352.
Moulds for shaping cigar bunches, Bear, 1425.
Combined pipe-case, tobacco-stopper, & pipe-brush, Wade, 1474.
Mouth-pieces for cigarettes, Cope, 1686.
Spinning, Murdoch, 1711.
Apparatus for blowing or cleaning out pipes, Hornby, 1782.
Pipes with cooling chamber and metal pricker, Keble, 1840.
Meerschaum pipes and pipe bowls, Maas (*Kast*), 1904.
Moulds for shaping cigar bunches, Leonardt, 2004.
Pipes and pipe cleaners, Clark (*Wetzlar frères*), 2350.
Cord and case for lighting cigars, &c., Von Wojewodsky, 2527.
Pouches for, Cadman, 2580.
Spinning, rolling, compressing, & winding, Butterworth, 2623.
Preventing fouling of pipes, Halfpenny, 2672.
Boxes or cases for fusees, Jarvey, 2703.
Moulding and shaping clay tobacco pipes, Golding, 2823.
Calendars for cigar-cases and holders, Fisslthaler, 2868.
Applying perpetual calendars to pipes, Fisslthaler, 2868.
Snuff box or holder and snuff deliverer, Orphin, 3012.
Box for tobacco, matches, &c., Bonneville (*Pichon*), 3018.
Cigar-cases in book form, Van Dyk, 3212.
Sign or lamp for tobacconists' shops, Kinder & Kinder, 3252.
Annealing glass for pipes, Monckton, 3307.
Mounts for tobacco pipes, Brown, 3454.
Adapting ignition fuses to cigar-lighters, Leonard, 3539.
Covers or cases for cigarette papers, Jensen (*Kœnig*), 3563.
Instrument for piercing cigars, De Zuccato, 3659.
Applying almanacks, &c., to pouches, Macintosh, 3933.
Embossing sheets of rubber, &c. for pouches, Macintosh, 3933.
Pipe with means for collecting nicotine, &c., How, 4020.
Pipe with means for collecting nicotine, &c., Aird, 4096.
Rolling or making cigarettes, Pope (*Pope*), 4136.
Pipes and tubes for smoking, Blumfield (*Hecht & Co.*), 4149.
The "unicum pipe and cigar tube cleaner," Reinhold, 4167.
Pipes and cigar holders with oil absorbers, Goring, 4171.
Applying electric briquets or lighters to cigar-cases, Lake (*Van* [*Tenac*), 4206.
Shaping & wrapping cigarettes, cheroots, & cigars, Davies, 4285.
Cartridge for charging pipes, Payne & Payne, 4337.
Device or "steel" for striking fire for smokers, Gros, 4357.
Opening and closing cigar cabinets, Quin, 4403.
Combined cigar & mouth piece ("An adherent cigar-holder"). [Van de Velde, 4407.
Preparing wired splints for cigar-lights, Grubb, 4529.
Cigar-making machinery, Lake (*Mann*), 4561.

Toddies (preparing). *See* Beverages.

Toilet-creams. *See* Cosmetics.

Tombstones; edging for tombs:
Producing inscriptions for, Mallet, 144.
Applying cements to and constructing, Ross, 850.

Tompions for guns. *See* Fire-arms.

Tools (grinding and sharpening). *See* Grinding.

**Tools (miscellaneous):**

Preventing waste of gas in heating, Loebl, 614.
Hand, for use without loosing handle, Wolverson, 763.
Making, from scrap iron, Clark (*Larocque & Larocque*), 927.
Giving self-acting feed-motion to, Bowker, 958.
Forming eyes upon hand, Chapman, 1823.
Supporting, by means of vacuum, King, 1903.
Increasing force of, when applied to work, Bolitho, 1931.

**Tooth-brushes.** *See* Brushes.

**Tooth-picks:**

Sliding, and handles for same, Devenport, 483.
Telescopic cases for, Cook, 1354.

**Tooth-powder boxes.** *See* Boxes.

**Tooth-powders and tinctures.** *See* Dentistry.

**Torches:**

Adapting ignition fuses to, Leonard, 3539.

**Torpedoes:**

Propeller screws for torpedo boats, Browne (*Fletcher*), 578.
Constructing, towing, and guiding, Cave, 646.
Battery for firing, Gardner, (*Mowbray*), 2132.
Firing and propelling, McEvoy, 2786.
Piles or batteries for firing, Lake (*Van Tenac*), 4206.
Fireless steam-engine for propelling, Fidler, 4377.

**Toughening glass.** *See* Glass.

**Towing ropes (holding).** *See* Propelling ships.

**Toys:**

Toy menageries, Lake (*Crandall*), 2009.
Numerical, for amusement & instruction, Jewitt (*Rose*), 2277.
Forming figures of animals and birds, Jewitt (*Rose*), 2418.
To be used & worked by draft from lamps, Lake (*Michaels*), 2439.
Acoustic telegraph for use as a toy, Benjumea, 2914.
Toy blocks and other articles, Newton (*Schmetzer*), 3156.
Actuating self-acting, Colborne & St. George, 3239.
Lock mechanism for toy guns, Piel, 3549.
Fountain, Clark (*Jouret*), 4461.

**Traces.** *See* Harness.

**Traction-engines (steam).** *See* Steam-engines.

**Traction-wheels.** *See* Wheels for carriages.

**Train signalling.** *See* Signals.

**Training dogs.** *See* Dogs.

**Trammels used in moulding.** *See* Casting metals.

**Tramway carriage axles.** *See* Axles.

**Tramway carriage breaks.** *See* Breaks.

**Tramway carriage fare-registers.** *See* Registering.

**Tramway carriage lamps.** *See* Lamps.

**Tramway carriages:**

Compound material for covering, Fish, 9.
Wheel guard or safety apparatus for, Bois, 45.
Rotary cellular engine for propelling, Boyman, 67.
Arranging self-propelling, worked by steam, Todd, 355.
Spiral bearing springs for, Byron (*Godley*), 550.
Surfaces for steps of, Haseltine (*Keene & Sawyer*), 700.
Cleaning, & brushes & wipers for same, Earl of Caithness, 703.
Suspension springs for, Johnson (*Baßolas & Carlier*), 1023.
For sharp curves, Johnson (*Baßolas & Carlier*), 1023.
Propelling, by endless ropes, Hallidie, 1204.
Adjustable draught spring for, Kearton, 1232.
Spring drawing gear and starting mechanism for, Brown, 1290.
Locomotives for, & coupling same, Merryweather & others, 1513.
Preventing noise, &c. in locomotives for, Merryweather & others, 1513.
With two bodies and to run on common roads, Jones, 1597.
Opening and closing windows, Clark (*O'Donoghue*), 1748.
With side passage of communication, Johnson (*Rikli*), 1793.
Door fastener for, indicating fastening of same, Kaye, 2058.
Bearing springs for, Spencer, 2062.
Arranging engine, boiler, &c. on steam, Buret de Longagne, 2107.
Starting gear; coupling, &c. wheels of, Buret de Longagne, 2107.
Surface condensers for steam, Alexander (*Rowan*), 2154.
Bogie for, to conceal engine, Alexander (*Rowan*), 2171.
Supporting, &c. ends of, on bogies, Alexander (*Rowan*), 2171.
General construction & arrangement of steam, Barclay, 2201.
Arranging steam tram-car bodies on bogies, Barclay, 2201.
Arranging steam, to work on one side only, Barclay, 2201.

**Tramway carriages—*cont.***

Constructing, Morgan-Brown (*Johnson & Harding*), 2329.
Starting device & break gear for, Morgan-Brown (*Gear*), 2779.
With independent truck frames, Morgan-Brown (*Gear*), 2779.
Storing and supplying gas to, Sugg, 2842.
Outside coverings for, Newman, 2939.
Light portable steam-engine for, Moy, 2977.
Propelling, by steam, Blockmans & Charlet, 3004.
Propelling, by compressed air, &c., Porteous & Bruce, 3364.
Steam motor with condenser for, Gendebien, 3346.
Tip wagon; using main frame as a truck, Simmons (*Carr*), 3361.
Locomotive; augmenting adhesion of same, &c., Harding, 3371.
Disposing of waste steam, &c.; increasing draft, Harding, 3371.
Adjustable tilts or covers for, Slater, 3391.
For running on either rails or road, Percy, 3393.
Motor engine for propelling, Monckton & others, 3396.
Compressed air or self-moving, Lake (*Mekarski*), 3498.
Spring motor for propelling, Lake (*Wennmackers*), 3501.
Automatic seats for outside of, Smith, 3724.
Indicating travelling condition & movements in, Lovell, 3859.
Locomotives to avoid noise, &c., Hughes & Coltman, 4023.
Compressed air engine for propelling, Holt, 4316.
Mounting boilers outside bodies of, Millar, 4370.
Swivelling or steering gear for steam, Millar, 4370.
Fireless steam-cars to avoid smoke, &c., Fidler, 4377.
Reducing lateral oscillation, &c. of, Adams, 4390.
Compressed air, water, & other motors for, Wernekinck, 4421.

**Tramway carriages (ventilating).** *See* Ventilating.

**Tramway carriages (warming).** *See* Heating.

**Tramway wheels.** *See* Wheels for carriages.

**Tramways (rails, sleepers, crossings, &c.):**

Chairs or supports, Hildebrandt (*Niemann & Geiger*), 316.
Fastening rails, Hildebrandt (*Niemann & Geiger*), 316.
Laying, paving, and fishing rails, Livesey, 599.
Forming or "fishing" or jointing rails, Lawson, 802.
Or asphalte rolling stock tracks for roads, Prosser, 961.
Preventing collisions on ("life preserver"), Owen, 969.
System of rails, Johnson (*Baßolas & Carlier*), 1022.
Wrought iron sleepers; fixing rails to same, Gedge (*Paternotte & Larmoyeux*), 2227.
Traversing crossings for, Piehlier, 3409.
Indicating, &c. inequalities in permanent way, Lovell, 3859.
Compound for making sleepers, Wilkinson, 4267.

**Transfer printing.** *See* Printing.

**Transferring oil paints to walls, &c.** *See* Paints.

**Transmitting power and motion.** *See* Propelling.

**Transmitting signals.** *See* Signals.

**Trapeze apparatus.** *See* Games.

**Traps (animal and insect):**

For instantaneously killing rats, rabbits, &c., Byng, 1512.
For catching bees, &c., Fellinger (*Costa & Kimelstein*), 1522.

**Traps for drains, sinks, waterclosets, cisterns, &c.:**

Double and single sealing stench, Buckley & Stock, 378.
For water-closets and other places, Pope, 448.
Siphon, for ventilating house drains, Buchan, 1469.
Sink, cistern, bath, and water-closet, Middleton, 1566.
Combined deodorising trap and ventilator, Cross, 1812.
For sewers, drains, or cesspools, Banner, 2461.
Double seal stench, Wilson, 2545.
Ventilating water-closet traps, Dodd, 2801.
Stench, for basins, sinks, &c., Lake (*Adee*), 2901.
Forming seamless compressed traps, Lake (*Du Bois*), 2946.
For water supplying; ventilating same, Clark (*Morrell*), 3770.
Forming soft metal plumbers', Edwards (*Mitchell*), 3764.
Floodway and stench trap, Clark (*Morrell*), 3923.
Casting plumbers' lead & earthenware, Lake (*Du Bois*), 4028.
For sewers, drains, cesspools, &c., Clark (*White*), 4328.

**Traveller and ring frames.** *See* Spinning (twisting).

**Travelling bags.** *See* Bags.

**Travelling cranes.** *See* Hoists.

**Trays:**

Combining glass, &c. for making, D'Humy, 1710.
Making seamless sheet metal, Thacker (*Martyn*), 3917.
Fabric for making ornamental, Paton, 3119.

**Treadles; treadle actions.** *See* Propelling.

**Treating ores.** *See* Smelting.

**Trees and plants.** *See* Plants.

Trellis-work. *See* Lattice-work.

Tricycles. *See* Velocipedes.

Trimming lawns. *See* Garden implements.

Trimmings:
Goffering, crimping, &c., Johnson (*Lowerre & Tucker*), 85.
Cressing, &c. fabrics for, Rath & Scantlebury, 232.
Edging ladies' wearing-apparel, &c. Gedge (*Cornely*), 306.
Device for marking and bias cutting fabrics for, Cramp, 374.
Imitation braids and, Loewenberg, 420.
Spinning, "fiddling", & weaving fringes, Dixon & others, 567.
Setting and giving lustre to braid, Rhodes & others, 1432.
Enchaining thread in form of braid, Newton (*West*), 1456.
Card for putting up braid, ribbons, &c., Haseltine (*Sutro*), 1479.
Perforated felt, for skirts, petticoats, &c., Taylor, 1590.
Gimp loom, Stone, 2221.
Ornamental, for petticoats, &c., Cadman, 2580.
For dresses, furniture, curtains, hangings, &c., Page, 2814.
For dress, furniture, curtains, &c., McPherson, 3106.
For necklets, armlets, and head ornaments, McPherson, 3108.
Machine for sewing, Heinrichs (*Schwalbe*), 3145.
Weaving tapes, Burlock (*Chapman*), 3218.
Plaiting, folding, and finishing fabrics for, Rath, 3717.
Fasteners for ribbons, Mappin, 3832.

Troches. *See* Medicines.

Trollies used in mines. *See* Mining.

Troughs:
Water, for railway cattle-trucks, Beavan, 1858.
Duplex and triplicate construction of, Shanks, 3188.
Cutting wood; using wood cut out, Bradbury & Bradbury, 3800.

Trousers. *See* Wearing-apparel.

Trucks and barrows. *See* Barrows.

Trucks (railway). *See* Railway carriages.

Trucks used in mines. *See* Mining.

Trunks. *See* Portmanteaus.

Trusses for hernia. *See* Surgery.

Tube-expanders:
General construction and arrangement of, Lyall, 1164.
Constructing & combining parts of, Lake (*Pagan & ors.*), 1709.
Working, by a ratchet-brace, Carlyon & Titterton, 2464.

Tube-plugs and stoppers. *See* Pipes.

Tubes (bobbin). *See* Bobbins.

Tubes for holding paint, food, &c. *See* Paint, &c.

Tubes or pipes. *See* Pipes.

Tubs. *See* Buckets.

Tubs or packages for butter. *See* Packing.

Tumblers. *See* Drinking vessels.

Tunnels; subways:
Rotary machinery for excavating, Gay, 160.
Ventilating, Atkins, 527.
Driving or cutting, Firth, 769.
Ventilating, by suction, Corfield, 1572.
Ventilating, Landau, 1674.
Rock drilling machine, Reynolds, 2287.
Forming, under water, in water bearing strata, &c., James, 2294.
Joint for tubes for tunnels under water, &c., James, 2294.
Ventilating, by partitioning doors and blowers, Dixon, 2319.
Machinery for rock tunnelling, Penrice, 2999.
Constructing, intended to be submerged, Roberts, 3175.
Laying and joining pipes and tubes for, Williams, 3199.
Arranging tunnelling machinery, Cowper, 3233.
Constructing sub-aqueous, in sections, Maynard, 3557.
Forming, sinking, &c. submarine; ventilating same, Johnson (*Castanier*), 3612.
Constructing sub-aqueous, in sections, Raynor, 3790.
Driving galleries or, in soft rock, &c., Beaumont, 4166.
Ventilating railway, Bell, 4261.
Explosive gas-engine for boring, Ellerbeck & Syers, 4326.

Turbines:
For treating gases, liquids, &c., Johnson (*Huet & Geyler*), 681.
Constructing and arranging turbine vanes, Reynolds, 724.
Constructing, of angular mounted discs, Radford, 1173.
Air turbine or motive-power, Clark (*Worms de Romilly*), 1848.
Driving, by compressed air and gases, Preiswerk, 2184.
Actuating, by compressed fluid, for motive-power, Brin, 3274.

Turbines—*cont.*
Toothed wheel motor, as substitute for, Monckton & others, 3396.
Working, by water pressure, Vickers & Malcolm, 4215.
Driving, by compressed air and gases, Preiswerk, 4324.

Turf. *See* Peat.

Turning; lathes:
Endless bands for driving lathes, Ramsden, 221.
Loom crank necks or sweeps, Haggas, 285.
Feeding screw and nut blanks to machines for, Rogers, 300.
Lathes for dentists, jet workers, &c., Howarth & Howarth, 322.
Treadle apparatus for operating lathes, Clark (*Dows*), 544.
Portable lathes for dentists, &c., Cranston (*Scott*), 677.
Lathes for makers of gas fittings, stop-cocks, &c., Low, 993.
Arrangement of frictional driving clutch, Low, 993.
Slide, surfacing, and screw cutting lathes, Beverley, 1045.
Applying grinding wheels to lathes, Butler, 1177.
Making cutting tools for use in, Lynam, 1192.
Lathes for turning buttons, &c., Spill, 1296.
Finishing exterior of gun-barrels by, Dyer, 1330.
Cones and other pulleys; globe turning, Illingworth, 1392.
Grinding lathe centres, Handyside, 1702.
Rotary tool-holder for potters' lathes, Gaskell, 1705.
Tools for and turning and shaping potters' clay, Napier, 1736.
Barrel of thread spools, Haseltine (*Lyman*), 1781.
Mandril stud of slide & screw-cutting lathes, Muir, 1801.
Pistons of rotary engines, Johnson (*Lämmerhirt*), 1867.
Automatic lathes for, shafting, &c. Burlock (*Wood*), 1914.
Rods for pistons and similar objects, Schönheyder, 2031.
Lathes for turning shafts and screws, New & others, 2301.
Rest for holding tools and cutting tools for, New & others, 2301.
Lathes for, and cutting screw-taps & dies, Imray (*Boyd*), 2737.
Slide adjunct for parabolas, &c., Bousfield (*Rodolphe*), 2987.
Dividing apparatus for cutting, &c. wheels, Scott, 3204.
Tool for grinding lathe centres, Handyside, 3865.
Screw-nuts and sockets for tubing, Whitley, 3942.
Or twisting metal strips, Jensen (*Halsey & Deaderick*), 3994.
Open spindle lathes for screwing, &c., Smith & Coventry, 4047.
Columns or pillars in stone, marble, &c., Dunlop & Ree, 4120.
Tool-holders and cutting tools for, New & others, 4273.
Speculum metal and glass reflectors and lenses for optical instruments, Bessemer, 4552.
Pneumatic holding apparatus for lathes, Bessemer, 4552.

Turnip cutters. *See* Root-pulpers.

Turnips (thinning, topping, tailing, &c.). *See* Tilling.

Turnstiles:
Registering, for omnibuses, tram-cars, &c., Feeny, 2228.
For tram-cars, Morgan-Brown (*Johnson & Harding*), 2250.

Turntables (railway). *See* Railways.

Turpentine:
Recovering, evaporated in india-rubber works, Barrow, 3675.

Tuyeres:
Arranging, in purifying metals, Smith, 217.
For fixed or portable forges, Gubbins, 1658.
Compound, for feeding furnaces, Walker (*De Bergue*), 2160.
For steel-making converters, Wedekind (*Witthöft*), 2941.
For smiths' forges or smiths' hearths, Reynolds, 3337.
Compound, or nozzles for feeding liquid fuel to furnaces, Walker (*De Bergue*), 4241.

Twine. *See* Ropes.

Twist lace and bobbin net. *See* Lace.

Twisting and spinning ropes. *See* Ropes.

Twisting and spinning tobacco. *See* Tobacco.

Twisting frames. *See* Spinning (twisting).

Type (composing and distributing). *See* Printing.

Type-cases. *See* Printing.

Type-writing machines. *See* Printing.

Tyres (wheel). *See* Wheels for carriages.

## U.

Umbrellas; parasols; sun-shades:
Runners and top notches for, Holland (*Myers*), 34.
Tools, &c. for making ribs & stretchers, Holland (*Myers*), 34.

Umbrellas; parasols; sun-shades—*cont.*

Paper material for sticks of, Gandy, 52.
Shaping and cutting paragon wire for, Worrall & Worrall, 189.
Ribs, stretchers and stops, Willis, 298.
Combined telescopic runner and "tip-cup," Harrison, 363.
Runners, top notches, ribs, eyes, &c., Mitchell & Mitchell, 410.
Removing ribs, &c. from, for repairs, Mitchell & Mitchell, 410.
Making paragon wire, Fairbrother, 650.
Ferrules for, Jones, 688.
Securing the tips of the ribs of, Elkan, 887.
Forming receptacle in handles of, Kain, 972.
Folding, for carrying in pocket, &c., Lake (*Steinmetz*), 975.
Tip fastener for, Crine & Shelley, 981.
Frames, to dispense with spring catches, &c., Charageat, 1046.
Adapting field-glasses or telescopes to, Hosking, 1379.
Securing covers for readily removing same, Butler, 1738.
Inserting lights in covers of, Hall, 1808.
Ferrules for, Mylchreest, 2082.
Joining edges of runners and top notches, Caddick, 2164.
Advertising by means of umbrella stands, Smith, 2212.
Ornamental material for, Cadman, 2580.
Collars, clamps, &c. for frames of, Lake (*Horton & Kato*), 2602.
Ribs with flattened end and fastening for same, Belcher, 2728.
Applying perpetual calendars to, Fissalthaler, 2868.
Device for securing coverings of, Hurcombe, 3146.
Securing fabric of cases or sheaths for, Hurcombe, 3146.
Tools for ornamenting handles of, Clissold, 3181.
Hardening and tempering solid or paragon wire, Wright, 3194.
Water-proof caps for and attaching covers of, Wrench, 3213.
Detachable covers for, of various sizes, Wrench, 3213.
Runners and top notches for, Warwick, 3569.
Archimedean cap or tip fastener, Lublinski, 3586.
Applying springs to aid in expanding, Blanchfield, 3799.
Stretchers, & joining same to ribs, Hayward & Hoyland, 3941.
Stretchers for expanding and locking when open, Martin, 4010.
Method of jointing frames, Garner & Eycroft, 4112.
Applying electric briquets or lighters to handles of, Lake (*Van Tenac*), 4206.
Cutting, heading, &c. wire lengths for ribs, Smith & Packer, 4306.
Frames for, Willis, 4493.

Uncoupling railway cars. *See* Railway carriages.

Unhairing hides and skins. *See* Leather.

Upholstery (mattresses, bedding, curtains, &c.):

Life-preserving mattresses and pillows, Clark (*Peck*), 49.
Embroidering fabrics for, Leach & Webb, 257.
Edging scolloped borders of curtains, Gedge (*Cornely*), 306.
Making upholstery fringes, Dixon & others, 567.
Life-saving mattresses, couches, &c., Cornish (*Cornish*), 577.
Cutting or pulverising flocks, Laycock, 779.
Cutting flocks, mungo, rags, waste, &c. for, Rhodes & others, 941.
Securing buttons in seats, &c., Cox & Hosmer (*Norwood*), 1067.
Life and property preserving mattresses, Pike, 1485.
Muslin or leno curtains, Miller & Jamieson, 1488.
Attaching curtains, valances, &c. to bedsteads, Dearden, 1550.
Attaching trimmings to toilet tables, Dearden, 1550.
Suspending window curtains, valances, &c., Dearden, 1550.
Ornamental curtains of glass, &c., D'Humy, 1710.
Press for stuffing stools, Leproust & Clair, 1861.
Cornice pole rings, Taylor, 1921.
Bed covering made from a fabric & pulp, Turner & Wilson, 2166.
Velvet pile fabric for covering furniture, Pichera, 2344.
Wire mattresses and seats, Schallehn (*Brühs*), 2442.
Using soldiers' cloak sacks as pillows, Huch, 2483.
Material for short window curtains, Cadman, 2580.
Life preserving bed or cushion, Haskell, 2662.
Combined mattress & box or chest for saving life, Gade, 2669.
Trimmings for furniture, curtains, hangings, &c., Page, 2814.
Cleaning bedding, &c., Lake (*Blake*), 2847.
Cleaning refuse of flax scutchers for, Kleinen, 2878.
Curtain rollers, Paling (*Paling*), 3055.
Trimming for furniture and curtains, McPherson, 3108.
French vegetable leather for covering tables, chairs, sofas, &c., Tongue (*Jolissaint-Vonèche & others*), 3290.
Mosquito curtain for hammocks, Henderson (*Boivin*), 3362.
Spring mattress for gymnasts, Oliver, 3366.
Magnetic beds, mattresses, & coverlets, Lyon, 3382.
Mounting, suspending, and gathering curtains, Slater, 3391.
Paper coverlets; substitute for blankets, &c., Loder, 3531.
Curtain bands for windows, Edmett, 3721.
Self-inflating life-saving mattress, Lloyd, 3801.
Using cotton fly for padding quilts, Pearson & Pearson, 4360.

Upsetting metals:

Heel end of horse-shoes, Lake (*Russell*), 48.
Heading chisel pointed nails, Rogers (*Mullholland*), 161.
Forming watch chain swivel heads, Clark (*Edge*), 1615.
Forming eyes upon pickaxes, adzes, &c., Chapman, 1823.

Urinals:

Invalid, for bedridden persons, Batty, 1000.
Filters for purifying urine in, Whitwham (*Bonnefin*), 1195.
Fitting house, to conduct gases into open air, Snell, 1268.

Urinals—*cont.*

Supplying disinfectants to, Howard, 1274.
Self-acting water regulating apparatus for, Jones, 1953.
Making and applying deodorising powder to, Wilks, 1972.
Periodically flushing or cleansing, Smith, 2377.
Preventing waste of water in, Hellyer, 2620.
Ventilating and flushing, Lanyon, 2715.
Cisterns and duplex basins for, Shanks, 3168.


## V.


Vacuum pans. *See* Heating or evaporating."

Vacuum pumps. *See* Air and gases.

Valves (air):

Operating, of rock drilling machines, Wise (*Lessel*), 3.
For hydro-pneumatic motors, Fisher & Rutherford, 36.
Regulating flow or pressure of air, Cave, 141.
Reducing, for air-break apparatus, &c., Steel, 333.
For apparatus used in blowing glass, Smith, 490.
Rock-drill engine, Haseltine (*Winchester & Phelps*), 455.
Working rotatory engine, Kaulbach, 542.
Reducing, for pneumatic railway breaks, Steel, 633.
Piston, lift, or check, for air-compressors, Alexander, 674.
Regulating flow of air, Lake (*Shepard & Seaman*), 761.
Cushioning high pressure, Justice (*Shaw*), 793.
Working slides of percussive rock drills, Beaumont, [illegible].
For pneumatic railway break apparatus, Smith, 875.
For blowing engines and air compressors, Brotherhood, [illegible]
Regulating pressure in engines, Abel (*Ribourt*), 1236.
Valve motion for rotary engines, Barlow (*Deck*), 1277.
Regulating and working engine slide, Wakefield, 1262.
Reciprocating circular or rotary engine, Brakell, 1368.
Radially arranged cylinder engine, Payton & Holmes, 1387.
Air-engine, and packing same, Trossin, 1700.
Angular butterfly, for working signals, Mills (*Plaud*), 1774.
Spring packing and lubricant for air-engine, Prior, 1869.
Arranging rotary engine, Johnson (*Lämmerhirt*), 1967.
For pneumatic railway breaks, Bolitho, 1931.
For compressed air reservoirs, Clark (*Gifford*), 2004.
For cold producing machines, Clark (*Gifford*), 2004.
Cushioning slide, of air-engines, Pickering, 2247.
Cylindrical rotating engine, Darlington & Thomas, 2302.
Driving cylindrical rotating, Darlington & Thomas, 2302.
For working railway signals pneumatically, Chambers, 2303.
For pneumatic breaks and signals, Westinghouse, 2403.
For regulating air to burners, Newton (*Nobel*), 2543.
For rotary blowers, Johnson (*Disston*), 2606.
High pressure, for controlling flow ways, Spikes, 2608.
System of, for air-breaks for railways, Steel, 2721.
Disc, for explosive gas-engine, Hallewell, 2836.
For life-saving apparatus and belts, Meiter, 2850.
Rotary, for pneumatic car breaks, Knapp, 2861.
Actuating, of pumping or other engines, Bridgett, [illegible]
Inlet and outlet, of air compressors, Greig & others, 3111.
For hot-air engines, Lake (*Foster*), 3143.
Blowing and air-compressing engine, King (*Chisholm*), [illegible]
Combined throttle and plunger for engines, Saxby, [illegible]
For forge tuyeres, Reynolds, 3337.
Cushioning check and other similar, Harlow (*Shaw*), [illegible]
For distributing compressed air, Lake (*Mekarski*), [illegible]
Regulating air supply to Argand burners, Chandler, [illegible]
Valve-gear for ships' propelling apparatus, Browne, [illegible]
For steam-pumps, Neuhaus & Hodgkin (*Blake*), [illegible]
Electro-magnetic, for thermo-regulators, Mori, [illegible]
For expanding life or raft-boats, Dunn, 4008.
Compressed air-engine; working and oiling same, Hall, [illegible]
Explosive gas-engine, Alexander (*De Bieschop*), [illegible]
Clack, for rotary compressed air-engines, Hodson, [illegible]

Valves (gas):

Arranging, of gas or petroleum engines, Abel (*Daimler*), 71.
Regulating flow or pressure of gas, Cave, 141.
For railway carriage regulators, Clark, 198.
Irregular oblongs, for dry gas-meters, Crombie, [illegible]
For regulating flow to argand and other burners, Porter, [illegible]
For down pipes of gasaliers, Atkins & Torr, 394.
Attaching, to mains under pressure, Bates, [illegible]
Automatic, for regulators, Lake (*Shepard & Seaman*), 761.
Slide or sluice, Mann & Owens, 862.
For regulating flow or discharge of, Carey & Porter, [illegible]
Centre, for working gas purifiers, Walker, 1058.
For condensers, scrubbers, gas-holders, &c., Walker, [illegible]
Regulating flow of lighting gas, Bablon, 1194.
Regulating pressure in engines, Abel (*Ribourt*), 1236.
Valve motion for rotary engines, Barlow (*Deck*), 1277.
Regulating and working engine slide, Wakefield, 1262.
Gas-engine, and packing same, Trossin, 1700.
Spring packing and lubricant for gas-engine, Prior, 1869.
Substitute for packing valve boxes, Brookes (*Farjon*), [illegible]

## Valves (gas)—*cont.*

Vibrating, for rotary gas exhausters, Simmons, 2105.
Various forms for gas-engines, Weatherhogg (*Taylor*), 2278.
Cylindrical rotating engine, Darlington & Thomas, 2302.
Driving cylindrical rotating, Darlington & Thomas, 2302.
Arranging gas governor, Peebles, 2328.
Regulating either high or low pressures, Birrell, 2604.
Arranging, in gas works, Anderson, 2843.
For gas regulators, Judkins, 3258.
For automatic lamp-lighters, Bell & Thorp, 3303.
For governing flow of gas to burners, Jewitt (*Rose*), 3440.
Stop-valve and boss for use in renewing taps, Tillyer, 3813.
Hanging flap, for relieving gas retorts, White, 3838.
Automatic pressure regulating, for street mains, White, 3838.
Sliding stop; working & holding down same, Stiff (*Leng*), 3843.
Electro-magnetic, for thermo-regulators, Mori, 3904.
Self-cleansing, for purifiers, Thorneloe, 4083.
Disc and other: opening and closing same, Cort, 4317.
Explosive gas-engine, Alexander (*De Bieschop*), 4342.
For water-level maintainers for meters, Sugg (*Arson*), 4427.

## Valves (miscellaneous):

For rotary cellular engines, Boyman, 67.
Equilibrium cock or valve for high pressures, Johnson, 156.
Portable apparatus for drilling flanges of, Enoch, 190.
For railway carriage heating apparatus, Scott (*Haag*), 236.
For furnaces burning crude oils, Clark (*Robinson*), 338.
Connecting, to bottoms and sides of ships, Spence, 427.
Discharge, for ship and house water-closets, Broadfoot, 507.
Self-regulating, for ventilators, Atkins, 527.
For vaporised air or gas apparatus, Neuhaus, 668.
Wire packing for D valves, Keirby, 737.
Operating, Defty, 760.
For percussive rock drills, Ellis, 900.
For use in making aërated liquids, Corry, 1318.
Or taps for drawing-off or decanting liquids, Goddard, 1581.
Discharge, for ship and house water-closets, Haigh, 1619.
Employing balls or spheres of india-rubber in, Haigh, 1621.
For fire-boxes of steam-boiler furnaces, Tressin, 1700.
Packing sluice or slide, Mallinson, 1750.
Ejecting liquids from vessels, &c., Montgomery, 1760.
Working slide, of percussive drills, Brown (*Burleigh*), 1766.
For ore stampers, Warran & Ellis, 1794.
For feeding bottles or flasks, Lake (*Monchovaut*), 1899.
Waste preventing screw valves, Dykes & Scott, 2030.
For steam drying cylinders, Fletcher, 2290.
Double, for aërated liquid bottles, Thom, 2446.
For metal casting apparatus, Haseltine (*Grasser*), 2467.
For reservoir pen-holders, Mackinnon, 2497.
Regulating, for burners for heating retorts, Birrell, 2604.
For supplying axle-boxes with oil, Beattie, 2792.
For hydrocarbon furnaces, Borland (*Borland*), 3178.
Discharge, for water-closets, Shanks, 3188.
For fog signals and sirens, Holmes, 3426.
For infants' feeding bottles, Messrs. Phelps, 3568.
Suction, for fixing artificial teeth, Jones, 3774.
For combined fog horns and sirens, Lake (*Brown*), 3861.
Combined taps & ball valves for mixing beer, &c., Ashton, 4008.
For bottling apparatus, Rendle, 4224.
Disc and other; opening and closing same, Cort, 4317.
For grain cleaners, Morgan-Brown (*Rose & Rose*), 4338.
Outlet, for vacuum pumps, Fryer & Alliott, 4395.
For cleaning or filling bottles, Warrington & Harwood, 4422.
Arranging discharge, of water-closets, Just & Downton, 4475.

## Valves (steam):

Material for packing stuffing-boxes of valve rods, Fish, 9.
For rotary cellular engines, Boyman, 67.
Pressure regulators and safety, Cave, 141.
Automatic easing apparatus for safety, Gilmour, 164.
Piston and other, for marine and other engines, Perkins, 224.
Combined cut-off and slide-valve, Broadbent & Westerby, 231.
For railway carriage heating apparatus, Scott (*Haag*), 236.
For steam-generating furnaces, Lake (*Farris*), 310.
Working cut-off slide, Mitchel, 318.
Arranging, of double cylinder engines, Hughes, 372.
Covers for stop-valve casings, Stevenson, 387.
Balanced slide-valves, Haseltine (*Smythe*), 422.
Operating engine cut-off, Cameron, 429.
Arranging and actuating stop, Stuart, 442.
Steam traps and escape or loaded safety, Shann, 458.
Rock-drill engine, Haseltine (*Winchester & Phelps*), 485.
Safety, circular, and inverted disc, for boilers, Stuart, 537.
Test cocks or valves for boilers; steam traps, Bailey, 539.
Compound lock up safety, for boilers, Bailey, 539.
Rotatory engine; working same, Kaulbach, 542.
Cutting-off steam in engines, Shaw, 543.
Reciprocating engine, King (*Westinghouse*), 569.
Cut-off, for portable expansion engines, Greig & Eyth, 663.
Wire packing for D valves, Keirby, 737.
Self-acting arrangement for working throttle, Defty, 760.
Regulating flow of steam, Lake (*Shepard & Seaman*), 761.
Cushioning high pressure, Justice (*Shaw*), 793.
Traps for steam pipes, Johnson (*Genesta & others*), 826.
Steam traps, Hilton & Clarke, 850.

## Valves (steam)—*cont.*

Slide or sluice, Mann & Owens, 862.
Expansion, for steam-engines, Little, 918.
Safety, coned on under side, for boilers, Alison, 967.
For steam-boiler injectors, Lake (*Rue*), 976.
Steam traps, Allmann, 996.
Variable cut-off, for superheated steam, Dixwell, 1012.
Combination of slide, for engines, Boire, 1022.
For automatic water-feeders, Lake (*Sulzbach*), 1049.
Steam trap or waste water conduit, Kusenberg, 1084.
For rotary engines, Haseltine (*Lidgerwood*), 1086.
Steam trap, Browne (*Gravelaine-Malorey & Coly*), 1088.
Slide, for engines, hammers, &c., Fawcett & Firth, 1100.
For engines for, driving hydro-extractors, Broadbent, 1144.
Valve motion for expansive engines, Greenwood, 1171.
Self-acting junction, for engines, Greenwood, 1171.
Regulator, for the delivery of steam, Bablon, 1194.
Annular equilibrium and piston, Brookes (*Hoyois*), 1223.
Working annular disc and piston, Brookes (*Hoyois*), 1223.
Regulating steam pressure in engines, Abel (*Ribourt*), 1226.
Valve motions for rotary & other engines, Barlow (*Deck*), 1277.
Regulating and working slide, Wakefield, 1282.
Arranging engine, for using them expansively, Otto, 1306.
Reciprocating circular or rotary engine, Brakell, 1393.
Applying, within piston, and operating same, Clough, 1417.
Designing, &c. slide, & indicating working of same, Cooper, 1497.
Connecting with fire-box, Merryweather & others, 1513.
Radially arranged cylinder engine, Payton & Holmes, 1567.
Steam-engine, and packing same, Tressin, 1700.
Actuating slide, of engines and pumps, Duncan, 1733.
Expansion, for engines & pumps; working same, Duncan, 1733.
Cushioning valve pistons, Duncan, 1733.
Valve gear of steam steering apparatus, Hastie, 1742.
Packing sluice and slide, Mallinson, 1750.
Automatic steam trap, Montgomery, 1760.
Spring packing and lubricant for engine, Prior, 1809.
Arranging rotary engine, Johnson (*Lämmerhirt*), 1867.
Safety, for boilers and operating same, Lockwood, 1879.
Compound engine, Johnson (*Alden & Alexander*), 1927.
Expansion and valve gear for engines, Amos & Smith, 2006.
Steam-boiler pressure regulator, Bull, 2061.
Vibrating, for rotary engines, Simmons, 2105.
Working equilibrium, slide, and expansion, Outridge, 2108.
Double inlet and exhaust, for engines, Lake (*Hlubek*), 2181.
Working oscillating balanced, Lake (*Hlubek*), 2181.
Slide throttle valve & gear for tram-car engines, Barclay, 2201.
For removing priming from engine cylinders, Holt, 2207.
For engine cylinders to dispense with governor, Holt, 2207.
Steam loaded double safety, for boilers, Lake (*Wilson*), 2234.
Cushioning slide, of engines, hammers, &c., Pickering, 2247.
Cushion piston acting part of waste valve, Pickering, 2247.
Slide, balanced, stop, & regulator, Weatherhogg (*Taylor*), 2278.
Balancing slide and other, Weatherhogg (*Taylor*), 2278.
Cylindrical rotating engine, Darlington & Thomas, 2302.
Driving cylindrical rotating, Darlington & Thomas, 2302.
Actuating engine slide, Carey & Porter, 2315.
Variable cut-off slide, Newton (*Molard*), 2383.
Double-edged or ring safety, Roxby & Pearson, 2390.
Reversing, of direct-acting steam-pumps, King, 2492.
Working horizontal high pressure engine, Wilson, 2599.
Balanced supply and exhaust for engines, Wilson, 2599.
Regulating pressure in boilers, Birrell, 2604.
Operating low-water safety, Hallam & Lamb, 2607.
High pressure, for controlling flow-ways, Spikes, 2668.
Safety, for steam-boilers, Barton, 2783.
For direct-acting steam pumping engines, Cherry, 2813.
Forming and packing piston and D slide, Beattie, 2838.
Light portable engine, Moy, 2977.
Packing and protecting sluice and slide, Mallinson, 2986.
Actuating, of steam pumping and other engines, Bridgett, 3028.
Safety, for steam-boilers, Hopkinson, 3036.
Inlet and outlet, for engines, Lake (*Foster*), 3143.
Forming, arranging, and disposing slide, Chancellor, 3158.
Valve gear for engines, Johnson (*Sulzer & others*), 3170.
For high-pressure engines, Spartali, 3251.
Combined throttle and plunger, for engines, Saxby, 3326.
Distributing, for steam-hammers, Glossop, 3349.
Equilibrium, for steam-boilers, Flint & Harlow, 3376.
Rotary, for steam-engines, Willoughby, 3378.
Working steam-engine slide, Gerring, 3407.
Cushioning check and other similar, Harlow (*Shaw*), 3430.
Spring safety, for boilers, Rochford, 3456.
Fitting oscillating trunnion engine, Melvin, 3541.
Differential, for engines working pumps and air compressors; [arranging and working same, Benson (*Cope & Maxwell*). [3598.
Tappet of "special" steam-pumps, Floyd, 3605.
For steam-engine condensers, Galsworthy, 3641.
Actuating cut-off or expansion, of engines, Woodward, 3645.
Arranging valve gear of engines, Pinfold & Browne, 3696.
Stop, for steam pipes of boilers, Pether & Heaketh, 3742.
Spring safety, for boilers, Adams, 3761.
Operating cut-off, by electricity, Johnson (*Wolcott*), 3789.
Stop-valve and boss for use in renewing taps, Tillyer, 3813.
Exhaust and supply, for steam breaks, Pashfield, 3858.
And seats for steam-pumps, Neuhaus & Hodgkin (*Blake*), 3867.

**Valves (steam)—*cont.***

Working, of steam steering engines, &c., Bow, 3927.
Rotary slide, with distributors, Clark (*Arnoux*), 3972.
Reversing and varying expansion, &c. gear for, O'Toole, 3977.
Cut-off, for steam-engines, Cherry, 3984.
For direct-acting steam pumping engines, Cherry, 3984.
Cock or substitute for slide valve, Thompson, 4080.
Self-cleansing, Thorneloe, 4083.
Actuating expansion, of towing engines, Crohn, 4184.
Actuating rock drill, Blake (*Ingersoll*), 4207.
For engines, to avoid links, &c., Lake (*Wolf & Wolf*), 4227.
Distributing, for engines, Earl of Caithness, 4233.
Arranging compound marine engine, Sells, 4244.
Disc and other; opening and closing same, Cort, 4317.
Spring lock-up safety, Coe, 4343.
Clack, for rotary engines, Hodson, 4458.
Variable expansion motion for cut-off, Cole & Cole, 4512.

**Valves (water):**

For hydro-pneumatic motors, Fisher & Rutherford, 56.
Safety, for thermal-hydro motors, Boyman, 67.
Arranging, for applying railway breaks, Clark, 80.
Regulators for hydrostatic motors, Clark (*Bontemps*), 99.
Regulating flow or pressure of water, Cave, 141.
For hydrants and fire-cocks, Blakeborough & Beck, 227.
For water-heating furnaces, Lake (*Farris*), 310.
Arranging, of hot-water apparatus, Ormson, 317.
Differential gear for working pump, Davey, 333.
Regulating supply to steam-boilers, Barlow (*Stratton*), 407.
Self-closing stop, for fountains, &c., Wirth (*Knaust*), 439.
Arranging and actuating stop, Stuart, 442.
Attaching, to mains under pressure, Bates, 660.
Arranging, in steam-boiler gauges, Henriot, 675.
Double cone stop, Wirth (*Knaust*), 678.
Operating water-closet supply, Storer (*Cooper*), 693.
For variable power hydraulic cranes, Walker & Pflaum, 719.
Hydraulic, for large gas-meters, Clark (*d'Hurcourt*), 770.
For regulating flow of liquids in breweries, &c., Gooch, 775.
Cushioning high pressure, Justice (*Shaw*), 793.
Trap for blowing off water, Johnson (*Geneste & others*), 826.
For controlling passage of water, &c., Farnsworth, 833.
Slide or sluice, Mann & Owens, 862.
For regulating flow or discharge, Carey & Porter, 902.
For regulating flow through pipes, &c., Hood, 994.
Inlet, for pumps, Brotherhood, 999.
Regulator for the delivery of water, Bablon, 1194.
Valve motion for rotary engines, Barlow (*Deck*), 1277.
Regulating and working engine slide, Wakefield, 1282.
For cisterns supplying measured quantities, Harries, 1367.
Reciprocating circular or rotary engine, Brakell, 1393.
Radially arranged cylinder engine, Payton & Holmes, 1567.
Hydraulic engine and pump, Payton & Holmes, 1567.
Employing balls or spheres of india-rubber in, Haigh, 1621.
Pump, of steam fire-engines, Wirth (*Knaust*), 1641.
Waste preventing discharge, Gordon, 1729.
Packing sluice or slide, Mallinson, 1750.
Spring packing and lubricant for engine, Prior, 1809.
For hydraulic presses, Clark (*Rochow & Matthiessen*), 1810.
Waste preventing hydrant, fire-cock, or stop, Tylor, 1857.
Controlling water-supply to hydrants, &c., Tylor, 1857.
Regulating pressure for water-meters, &c., Tylor, 1857.
Arranging rotary engine, Johnson (*Lämmerhirt*), 1867.
Self-acting, in lieu of ball cocks, Hughes, 1870.
For regulating supply to urinals, &c., Jones, 1953.
Substitute for packing valve boxes, Brookes (*Farjon*), 1994.
Suction and delivery, for steam-pumps, Blake (*Hall*), 2026.
Water-waste preventing "screw valves," Dykes & Scott, 2030.
Working and repairing, for hydrants, Chrimes, 2060.
Feed regulator, for steam-boilers, Bull, 2061.
Vibrating, for rotary pumps and engines, Simmons, 2105.
Sluice and other, Weatherhogg (*Taylor*), 2278.
Arranging and working hydraulic press, Wilson, 2436.
Inlet and outlet, for steam pumps, King, 2492.
For lift pumps, Sagar-Musgrave & others, 2572.
Regulating pressure in tubes or pipes, Birrell, 2604.
For preventing waste, flushing closets, &c., Barnett, 2616.
High pressure, for controlling flow-ways, Spikes, 2668.
Ball, for high or low pressure water service, Butler, 2856.
Arranging hydraulic, in rolling mills, Imray (*Hahs*), 2903.
Packing and protecting sluice and slide, Mallinson, 2966.
Packing for hot or cold water, Hornsby, 3013.
For hydraulic gun-carriage brakes, Longsdon (*Krupp*), 3134.
Inlet and outlet, for engines, Lake (*Foster*), 3143.
Supply, for cisterns, Shanks, 3188.
Non-return, for meters, Fleury, 3247.
For garden syringes, Shaw, 3272.
Suction and discharge, for pumps, Rowe, 3287.
Working rotary steam & other fluid pump, Thornycroft, 3305.
Combined throttle and plunger, for engines, Saxby, 3326.
For portable fountains, Schildberg, 3359.
Inverted cup or basin like floats for ball, Phillips, 3394.
Cushioning check and other similar, Harlow (*Shaw*), 3430.
Valve gear for hydraulic apparatus, De Winton, 3455.
Water-supply and regulating apparatus; locking same, Newton, 3542.

**Valves (water)—*cont.***

Or float for water-supply apparatus, Newton, 3542.
Tenacious vulcanite for pump, MacLellan, 3573.
For hydraulic cranes and machinery, Fenby, 3584.
Arranging steam-pump and cataract cylinder, Benson (*Cope & Marwell*), 3624.
For meters, Clark (*Taylor & Kimball*), 3625.
Self-acting feed, for steam-boilers, Cottew, 3695.
Stop-valve and boss for use in renewing taps, Tillyer, 3812.
For water-meters, Mathews, 3827.
Sliding stop; working & holding down same, Stiff (*Long*), 3845.
For pumps: working same, Cleminson, 3849.
Seats for steam-pump, Neuhaus & Hodgkin (*Blake*), 3867.
Pump, of refrigerating machines, Stanley, 3907.
Self-closing, Storey & Storey, 3918.
For hydraulic presses, Lake (*Du Bois*), 4024.
For regulating pressure in pipes or mains, Melling, 4028.
Self-cleansing, Thorneloe, 4083.
For water-waste preventers, Jennings & Pocock, 4192.
Closing detail of stop; opening same, Anderson, 4314.
Disc and other; opening and closing same, Cort, 4317.
Clack, for rotary engines, Hodson, 4458.

**Vapour baths.** *See* Baths.

**Vapourising oils.** *See* Heating or evaporating.

**Varec or sea-wrack.** *See* Sea-weed.

**Varnishes; lacquers; varnishing:**

Using alkannin in lacquers for metals, Jensen (*Hasslacher & American Sewing Machine Co.*), 38.
Solvents for use in making, Mackay, 200.
Utilising transparent varnish waste or refuse, Cole, 435.
Stoving varnished or lacquered goods, Peacock & Rudkin, 894.
Preparing oils for mixing with, Zingler, 1276.
Aniline black for making, Clark (*Graveitz*), 1620.
Materials for preparing aniline, Wolff & Betley, 2421.
Melting, &c. gums for making, Spence (*Lefèbvre & Co.*), 2364.
For coating materials and structures, Gaine & others, 2511.
Preparation for removing, from wood, Hayhoe, 3614.
Machine for varnishing and lacquering, Paget, 3661.
India-rubber tools and surfaces for applying, Paget, 3772.
Protecting vessels for containing and removing, Ryland, 4381.

**Vases:**

Combining glass, &c. for making, D'Humy, 1710.
Adapting fountains to, Schildberg, 3359.
Forming bottoms of plant, Martin, 4459.

**Vats.** *See* Cisterns.

**Vaults and basements.** *See* Buildings.

**Vaults or graves.** *See* Graves.

**Vegetable oils.** *See* Oils (vegetable).

**Vegetables (drying).** *See* Drying.

**Vegetables (preserving).** *See* Preserving food.

**Velocipedes:**

Tension wheels for, Shaw, 546.
Bicycle adjustable treadle mechanism, Rood & Hallett, 638.
Adjusting height of steering handles, Turner, 1339.
Tricycles and manupede carriages, Bodel & others, 1539.
Pedomotive wheeled horse or perambulator, Ibbotson, 1823.
For land and water, Thellusson, 2066.
Driving gear and adjustable seats for, Monteith, 2068.
Bicycles; wheels for same, Meyer, 2710.
Tricycles, Attenborough & Mason, 2761.
Sockets, breaks, wheels, &c. for bicycles, Carter, 2893.
Baroscycle, Birley & Smythe, 2968.
Steering and guiding bicycles, Robinson, 2998.
Bicycles; breaks and tension wheels for same, Aves, 3425.
Bicycle with parallel wheels & seat between, Jack, 3324.
Roller bearings for bicycles, Hoadley, 4124.
Mechanism for driving bicycles, Shaw, 4346.

**Velvets (weaving),** *See* Weaving (carpets).

**Veneering metals.** *See* Coating metals.

**Veneering paper.** *See* Paper (making).

**Veneers and veneering.** *See* Wood.

**Venetian blinds.** *See* Window-blinds.

**Ventilating apparatus (application not stated):**

Cowl and screw arrangement of, Stephens, 2672.

**Ventilating carriages:**

In supplying air to oil-lamps, Martin, 468.
Arrangement of cones, &c., and purifying air for, Atkins, 527.
Hearses, Dottridge, 1183.
Suction cowls for locomotive carriages, Church, 1273.
Working fans for, Spurrier, 1516.
Cowl for railway carriages, Catherall, 1544.
Arranging pipes in and cowl for, Landau, 1674.
By waste steam and heat from locomotive, Brown, 3097.
Ventilators with supports for cords or chains, Smith, 3125.
By withdrawing air from same, Gardner (*Hargreaves*), 3961.

**Ventilating drains and sewers:**

To prevent gases entering houses, Potts & Darnell, 272.
Arrangement of cones & air passages for, Atkins, 527.
Shafts for, Williamson, 602.
Siphon traps for house drains, Buchan, 1499.
Bellows or suction apparatus for, Corfield, 1572.
Arranging pipes in and cowl for, Landau, 1674.
Deodorising trap for, Cross, 1813.
Placing cowl on top of soil pipe or shaft, Banner, 2401.
Trap or gully for, Lanyon, 2715.
Soil pipes of water-closets, Dodd, 2801.
Traps for water supplying and, Clark (*Merrell*), 3739.
Cowls and gratings for, Parker, 4378.

**Ventilating houses and buildings:**

Hot-air stoves for, Howarth, 240.
Cooling or, Weatherby, 351.
Syphon and single tube, Hill & Hey, 362.
Ventilators appearing like dormer lights, Hill & Hey, 362.
Arrangement of cones, &c. and purifying air for, Atkins, 527.
Applying apparatus to windows and doors for, Currall, 730.
Ventilators for chimneys, walls, ceilings, &c., Currall, 730.
Stove for warm ventilation, George, 808.
Cements for and constructing ventilator openings, Ross, 850.
Apartments for infectious patients, Currall, 858.
Employing "refouleurs" for, Wise (*Bertot*), 899.
Suction cowls for, Church, 1273.
Machine for supplying cool pure humid air, Braun, 1278.
Working fans for, Spurrier, 1516.
Using cowls as ventilators, Catherall, 1544.
Bellows or suction apparatus for, Corfield, 1572.
Exhausting or discharging air from rooms, Harper, 1652.
Ventilators for and supplying air to, Landau, 1674.
Applying ventilators to windows, Landau, 1674.
Opening, &c., ventilators, Clark (*O'Donoghue*), 1748.
Air injecting apparatus, Clark (*Worms de Romilly*), 1848.
Screw apparatus for regulating temperature, Walker, 1886.
Compressing air for cooling or, Willans (*Willans*), 1897.
Regulating temperature of heated air, Shorland, 1970.
Windows with inner or supernumerary sash for, Hyatt, 2015.
Air-heating apparatus for, Hughes (*Smith & Bates*), 2083.
Supplying heated air mixed with steam for, Preiswerk, 2184.
Self-acting ventilator or cowl for, Wawn & Willcox, 2340.
Methods, materials, &c. for, Hyatt, 2359.
Window & hot-air chamber & adjuncts for, Rigby & Rigby, 2487.
Applying tubes to windows, doors, &c. for, Coste, 2544.
Hearth chambers and opening in ceiling, Westmorland, 2562.
Manufactories, &c. by fumigation, Gill, 2621.
Removing noxious gases and vapours, Lanyon, 2715.
By introducing cooled and purified air, Livesey, 2739.
Tool for cutting holes in walls for, Livesey, 2739.
Arranging air flues for, Livesay, 2832.
Gas retort houses, Anderson, 2843.
Ceilings of theatres or halls, &c., Bellini, 3215.
Ventilating gratings for ceilings and roofs, Hyatt, 3357.
Hydraulic ventilators for theatres, Brown, 3593.
Producing air currents for, Pate (*Cattell*), 3594.
Air pump apparatus for; working same, Cunningham, 3621.
Methods of ventilating strong rooms, Chatwood, 3626.
Applying electricity to draft gauges, Pastorelli, 3706.
Attachment for shafts for, Tarrant, 3723.
Combined water-supply and ventilating apparatus, Clark (*Morrell*), 3739.
Ventilator to be placed in chimney breasts, Anderson, 4019.
Window sashes and syphon grating for, Hyatt, 4063.
By admitting external air through grates, Wavish, 4106.
Opening, closing, and securing swing ventilators, Eyre, 4154.
Chimney pot and ingress ventilators for, Capper, 4312.
Supplying heated air mixed with steam for, Preiswerk, 4324.

**Ventilating mines:**

Actuating fans, Richardson & Ball, 564.
Rotary engine, pump, or mine ventilator, Cooke, 839.
Constructing and driving fans for, Knott & Rudd, 916.
Rotary machine for, Cooke, 950.
Rotary fan for, Radford, 1173.
Engine for working fans for, Brakell, 1393.
Bellows or suction apparatus for, Corfield, 1572.
Air injecting apparatus for, Clark (*Worms de Romilly*), 1848.
Self-acting ventilator or cowl for, Wawn & Willcox, 2340.
Centrifugal machines for, Rammell, 3387.

**Ventilating or disinfecting.** *See* Disinfecting.

**Ventilating ships:**

Working pumps for use in, Deverell & Tower (*Deverell*), 368.
Hollow steel masts for life-boats, Clark (*Malo*), 404.
Arrangement of cones, &c., and purifying air for, Atkins, 527.
Arranging pipes or perforated flues for, Roberts, 585.
Suction cowls for, Church, 1273.
Working fans for, Spurrier, 1516.
Bellows or suction apparatus for, Corfield, 1572.
Exhausting or discharging air from holds, Harper, 1652.
Arranging pipes in and cowl for, Landau, 1674.
Self-acting ventilator or cowl for, Wawn & Willcox, 2340.
Wind shute or wind sail for, Allardyce, 2417.
Automatic apparatus for, Lanyon, 2715.
Arranging pipes and blast fans for, Cargill, 3152.
Double-acting force pump for, McMinn, 3457.

**Ventilating tents.** *See* Tents.

**Ventilating tunnels:**

Arrangement of cones & air passages for, Atkins, 527.
Bellows or suction apparatus for, Corfield, 1572.
Arranging pipes in and cowl for, Landau, 1674.
By partitioning doors and fan blowers, Dixon, 2319.
Shafts for submarine tunnels, Johnson (*Castanier*), 3612.
Arranging air passages in railway tunnels, Bell, 4261.

**Ventilating wearing-apparel:**

Waterproof garments, leggings, &c., Marshall, 1905.
Waterproof garments, Luck, 2226.
Hats, by perforating same, Lochhead, 2366.
India-rubber garments, Melter, 1850.
Waterproof garments, leggings, &c., Marshall, 3949.

**Vermicelli.** *See* Preserving food.

**Vermin and insects.** *See* Insects.

**Vessels or ships.** *See* Ship-building.

**Vests.** *See* Wearing-apparel.

**Viaducts.** *See* Bridges.

**Victoria Melton.** *See* Felt.

**Victorines and boas.** *See* Muffs.

**Vigorite.** *See* Explosive compounds.

**Vinegar.** *See* Acids.

**Vineries.** *See* Greenhouses.

**Vitriol.** *See* Acids.

**Voltaic batteries.** *See* Electricity (generating).

**Voltameters.** *See* Electricity (generating).

**Voting or ballot apparatus:**

Cabinet polling stations, Swindells & Robinson, 871.
Box with moveable platform and counters, Lowe, 3351.

**Vulcanite.** *See* India-rubber.


## W.


**Wadding; batting:**

Colored waddings for carpets, &c., Oldroyd & Blamires, 1437.
Producing, without paper, paste, &c., Johnson (*Whipple*), 2623.
Interlacing fibres for making, Johnson (*Whipple*), 2623.
Colored waddings for carpets, &c., Oldroyd & Blamires, 2858.

**Wafers.** *See* Seals.

**Waggon sheets or covers.** *See* Tarpaulins.

**Waggons (common road).** *See* Carriages.

**Waggons (railway).** *See* Railway carriages.

**Waistbands.** *See* Belts and bands.

**Walking-sticks; canes:**

Ferrules for, Jones, 688.
Forming receptacle in handles of, Kain, 972.
Adapting telescopes, &c. to canes, staves and, Hosking, 1379.
Ferrules for, Mylchreest, 2082.
Applying perpetual calendars to, Fissthaler, 2868.
Tools for ornamenting handles of, Chissold, 3181.
Applying electric briquets to, Lake (*Van Tenac*), 4206.

Wall-papers. *See* Paper-hangings.

Walls; partitions:
Peat-cement for coating brick, Wilkinson, 60.
Lattice framework covering for, Rideal, 113.
Compound material for and forming, Pope, 159.
Hanging, opening, and closing sliding partitions, Cole, 698.
Applying cements to, and constructing, Ross, 850.
Transferring designs to, Vaughan (*Maynard*), 1003.
Tiles for facing concrete, mud, brick, and other, Conway, 1292.
Casing and ornamenting surfaces of, D'Humy, 1710.
Preparing cloth for covering or lining, Smieton, 1731.
Building walls of hollow concrete boxes, &c., Sellars, 2121.
Forming, of concrete slabs, Lascelles, 2151.
Constructing, to save material and weight, Prestage, 2160.
Ornamenting, weather-proofing, and inlaying, Hyatt, 2359.
Illuminating gratings for ornamenting, Hyatt, 3357.
For prisons, bank vaults, &c., Harris (*Cook & Heath*), 3375.
Hollow walls as substitutes for retorts, Lyttle, 3579.
Parquetry work for decorating, Thornton & Thallon, 3632.
Paper-lined cloth fabric for lining, Smieton, 3684.
Forming with zig-zag flues, Hyatt, 4063.
Tiles for facing concrete and other, Hyatt, 4063.
Erecting, of hollow blocks or shells, Sellars, 4266.
Compound covering for, Wilkinson, 4267.

Wardrobes. *See* Furniture.

Warming or heating. *See* Heating.

Warp fabrics:
For straps, bands, harness, ropes, pipes, &c., Boucley, 451.

Warping and beaming machines:
Substitute for wraiths or combs; stop-motion, Lancaster, 250.
Bobbins used in warp winding, Freir & Fairlie, 773.
Warping-machine; beam for same, Ashworth & Ashworth, 1618.
Stopping and starting warp beam, Ashworth & Ashworth, 1618.
Hollow warp beams and bearings, Bousfield (*Bigelow*), 3124.
General construction of warping mechanism, Clark, 3523.
Stopping beam & spools, Henderson (*Moulton & others*), 3916.
For combining chains of yarns in one warp, Paton, 3979.
Reeds for use in, Gray, 4463.

Wars of the Roses. *See* Games.

Wash or dip for sheep, &c. *See* Medical treatment.

Washers and nuts. *See* Nuts and washers.

Wash-houses. *See* Washing fabrics.

Washing and scouring fabrics and fibres:
Water circulator for "coppers," Collier & Holding, 19.
Clothes, Jensen (*Bohlken*), 295.
Combined washing and churning machine, Kitchen, 1061.
Clothes, Macfarlane, 1274.
Reversing motion for clothes washers, Norris, 1315.
Linen, wearing-apparel, &c., Mason, 1395.
Woven or felted fabrics, Rhodes & others, 1511.
Balance for ascertaining loss of wool in weight by, Jensen [(*Bockhacker*), 1962.
Giving motion to "dolly," Summerscales & others, 2155.
Steam machine for cleansing cloth, &c., Webster, 2256.
Purifying and drawing-off water for, Macdonald, 2343.
Wool and other fibres and yarns, Bartleet (*Chambers*), 2458.
Wool by means of rollers or cylinders, Hughes (*Weiss*), 2480.
Spiral fluted roller machine for clothes, Blake, 2490.
Combined clothes washer and wringer, Thompson, 2533.
Wool and other fibres, Messrs. Merrall, 2550.
Wool and fibres, reversing gearing, Messrs. Jefferson, 2587.
Ventilating wash-houses, Lanyon, 2715.
Keeping cloth straight and open in, Messrs. Marsden, 2845.
Cloths, linen, &c., Autier (*Dubuc & Mutel*), 2898.
Inodorous furnaces for wool-washing works, Rabot, 2925.
Oil or grease out of fibres, yarn, & fabrics, Sykes, 2926.
Actuating rotary machines for, Norris, 2940.
Machine with oscillating dasher for linen, Hooker, 2950.
Clothes and other articles, Green & Place, 3026.
Clearing discharge pipes of tubs, Clark (*Hawley*), 3063.
Apparatus for use with tubs or pails, Firth, 3140.
Revolving cages inside keirs, &c., Copley & Jennings, 3141.
Combination of washing, steaming, and drying apparatus, [Schofield & others, 3570.
Clothes, Bell, 3606.
Woollen yarns and fabrics, cotton waste, &c., Kenworthy, 3655.
Wool and other fibres, Whitehead & Wright, 3844.
Elevating sheet or apron for use in, Whitehead & Wright, 3844.
Machine for cleansing, wringing, and mangling, Turner, 3847.
Method of combining a table with machines for, Turner, 3847.
Detergent salts for silk and wool or woollen goods, Way, 3876.
Clothes and other articles, Morison, 3992.
Cleansing wool and recovering products, Ford, 4168.
Wool, &c. to dispense with brats and aprons, Nichols, 4211.

Washing china, glass, and earthenware articles:
Plates, dishes, cups, glasses, bottles, &c., Hope-Vere, 183.
Bottles, Wilson, 474.
Bottle brushing apparatus, Wilson, 1299.
Bottles and similar vessels, Macdonnell, 1454.
Bottles and other vessels, Warrington & Harwood, 4422.

Washing coal gas. *See* Gas (making).

Washing gases or vapours. *See* Gases.

Washing minerals and coprolites:
Ores by machinery, Hall, 731.
Coprolites, by cylinders rotating in water, Twist, 2337.
Filtering refuse waters from mines, Wollaston, 2521.
Ores in process of crushing, Sholl, 2524.
Ore-dressing machine, Boyns, 3418.

Washing preparations. *See* Soap.

Washing roots. *See* Roots.

Washing-basins. *See* Lavatories.

Wasps (catching). *See* Insects.

Waste heat (utilising). *See* Furnaces. Fire-places. [Ovens. Steam-boilers. &c.

Waste metal (utilising). *See* Metal waste.

Waste or rags. *See* Rags.

Waste-water-conduits or valves. *See* Valves.

Watch-chains. *See* Jewellery.

Watches and watch-keys. *See* Clocks.

Watchmen's time detectors. *See* Tell-tales.

Water-closets; earth-closets; commodes:
Supplying water to, Rydill, 150.
Ventilating, Potts & Darnell, 272.
Self-closing stop-valves, Wirth (*Knaust*), 439.
Trapping apparatus for, Pope, 448.
Discharge valves & casings for ship and house, Broadfoot, 507.
Arranging admission of flushing water, Rowley, 649.
Flushing & washing basins ("Wash-out basin"), Rowley, 649.
Operating supply cock and pan of basins, Storer (*Cooper*), 693.
Supplying dry earth, &c. to earth-closets, Liddiard, 934.
Flushing and cleansing basin of pan and hopper, Phillips, 984.
Introducing disinfecting fluid in trap of, Brown, 1120.
Fitting, to conduct gases into open air, Snell, 1262.
Disinfecting, Teychenné, 1337.
Gauging water used for flushing, Harries, 1367.
Supplying disinfectants to, Howard, 1374.
Traps for ventilating soil pipes of, Buchan, 1499.
Traps for, Middleton, 1506.
Discharge valves and boxes for ship and house, Haigh, 1619.
Coating both sides of pans for pan, Buchan, 1662.
Ventilating, Landau, 1674.
Ventilating, disinfecting, and deodorising, Popoff, 1693.
Waste preventing discharge valves for, Gordon, 1729.
Automatic adjusting and deodorising lids, Walkington, 1799.
Adjustable fans for controlling water supply, Tylor, 1857.
Vessels &c. for receiving and removing fæces, Scott, 1918.
Carbonaceous deodorising powder for, Wilks, 1972.
Ventilating cowls for, Wawn & Willcox, 2340.
Periodically flushing or cleansing, Smith, 2377.
Producing after-flush in, Barnett, 2616.
Preventing waste of water in, Hellyer, 2620.
Ventilating and flushing, Lanyon, 2715.
Ventilating; flushing rims for basins, Dodd, 2801.
Supplying deodorant to dry earth and flushing, Taylor, 2802.
Packing lids of chamber utensils and commodes, Dixon, 2932.
Packing lids of water-closet seats, Dixon, 2932.
Basins for and flushing, Grave, 3157.
Basins, discharge valves, and cisterns for, Shanks, 3188.
Dry-ash closets; sifters, &c. for same, Sedden & Ellis, 3327.
Preparing or medicating thin paper for, Austen, 3497.
Combined water supply and ventilating apparatus, Clark [(*Morwell*), 3739.
Using closet paper for advertising, Bates & Money, 3996.
Water-waste preventers for, Jennings & Pocock, 4192.
Spreading, &c. deodorants in dry-closets, Johnston, 4194.
Sifting cinders in dry-closets, Alcock, 4236.
Means of exhibiting when closets are engaged, Jones, 4294.
Three valve arrangement for, in lieu of traps, Just & Downton, [4475.

Water-cranes; water-columns:
Columns for railway purposes, Rogers, 598.

**Water-falls or cascades:**
Producing artificial, in theatres, Brown, 3593.

**Watering and irrigating:**
Constructing irrigation areas, Rydill, 150.
Supplying hot-water to towns and villages, Cowper, 165.
Double valved hydrants, Blakeborough & Beck, 227.
Cocks for water-posts, Chameroy, 417.
Water-cart, Livingstone, 837.
Plants, trees, and seeds by capillary attraction, George, 1104.
Water carts or vans for, Bayley, 1447.
Hydrants for fire purposes, watering roads, &c., Tylor, 1857.
Repairing hydrant valves under pressure, Chrimes, 2060.
Cereals, &c. with mineralised water, Hyatt, 2307.
Nozzle piece or "director" for hose or tubes, Tweeddale, 2597.

**Watering-pots:**
Attachment for holding fertilisers, Wheeler, 1592.
Suspending, for watering plants out of reach, Huthwaite, 2426.

**Water-keys.** *See* Cocks.

**Water-level indicators.** *See* Gauges.

**Water-malt.** *See* Food for animals.

**Water-meters.** *See* Meters.

**Water-power engine governors.** *See* Governors.

**Water-power engines; hydraulic motive-power:**
Thermal hydro-motors, Boyman, 67.
Hydrostatic motors, Clark (*Bontemps*), 99.
Rotary and reciprocating, Higginson, 108.
Hydraulic engines for raising loads, &c., Casson, 123.
Rotary; regulating expansion in same, Cory, 286.
From the motion of ships, Deverell & Tower (*Deverell*), 308.
From tides acting on water-wheels, Wilkinson, 380.
Rotary, Johnson, 400.
Hydro-steam motor, Morgan-Brown (*Viglino & Donna*), 626.
Combining and arranging turbines to obtain, Reynolds, 724.
Rotary, Cooke, 839.
Combined pneumatic and hydraulic engine, Collingridge, 867.
With cylinders, &c. rotating round a fixed crank, Taylor, 892.
Rotary, Cooke, 950.
Hydraulic machine for cutting coal, &c., Foulis, 1140.
Turbines, Radford, 1173.
New type of rotary, Barlow (*Deck*), 1277.
Reversing gear for single or double, Wakefield, 1282.
Reciprocating circular or partially rotary, Brakell, 1393.
Rotary, Samain, 1542.
Radially arranged cylinder, Payton & Holmes, 1567.
Hydraulic machinery for making boiler plates, Brown, 1607.
By pressure of water on toothed wheels, Creasy & Tully, 1692.
Hydraulic engines, Clark (*Rochow & Matthiessen*), 1810.
Accumulators for, Clark (*Rochow & Matthiessen*), 1810.
Pump forming a motive-power in itself, Wallace, 1816.
Hydro-aërial wheel & turbine, Clark (*Worms de Romilly*), 1848.
Rotary, Johnson (*Lämmerhirt*), 1867.
Rotary, Simmons, 2105.
Driving or working, Preiswerk, 2184.
Direct-acting rotary without cranks, &c., Vaile, 2470.
Water-wheel for driving light machinery, Lake (*Lane*), 2615.
Wheel with hollow curved channels, Stalkartt, 2631.
Connecting pistons, &c. in, Messenger & Churchward, 2666.
Producing water pressure for propelling torpedoes and floating [bodies, McEvoy, 2786.
Utilising rolling action of vessels, Deverell & Tower (*Deverell*), [2890.
Rotary, to avoid dead centres, Fraser, 2990.
Rotary, Lake (*Shedd & Jenks*), 3070.
Arranging pistons and valves, Lake (*Foster*), 3143.
Compressed liquid engine for working, Brin, 3274.
Rotary, Brae, 3276.
Combined throttle and plunger valve for, Saxby, 3326.
Converting reciprocal into rotary motion in, Turnock, 3344.
By pressure of water on toothed wheels, &c., Monckton & others, [3396.
Hydraulic apparatus for slate-working machinery, De Winton, [3455.
Valves of oscillating trunnion engines, Melvin, 3541.
Water-wheels with ridged boards, Henderson, 3565.
Hydraulic machinery for forging, stamping, &c., Fenby, 3584.
Engine or ram for working hydraulic apparatus, Brown, 3593.
Engine for working ventilating apparatus for theatres, Brown, [3593.
Preventing jerk of piston at end of stroke, Cunningham, 3621.
Applying hydraulic power in dredging, Lake (*Newton*), 3784.
Rotary, Vacherot, 3828.
Wheel worked by four columns of water, Hilditch, 4101.
Working turbines by hydraulic pressure, Vickers & Malcolm, [4215.
Driving hydraulic wheels and turbines, Preiswerk, 4324.
Rotary; reducing friction in same, Hodson, 4458.
Low pressure water-power engine, Wernekinck, 4521.

**Water-proofing; water-proof fabrics:**
Substitutes for wood, leather, &c., Gandy, 52.
Canvas, &c. by means of lead, Clark (*Rogé & others*), 288.
Boots, Benson (*Williams*), 437.
Artificial leather or cloth, Block 718.
Paper and millboard, Scoffern & Tidcombe, 827.
Artificial fuel, Radeke, 1027.
Elastic covering for boots and shoes, Horrex, 1260.
Boots and shoes, Warren, 1438.
Packing paper and cloths or fabrics, Clayton, 1547.
Vulcanised compound water and air proof fabrics, Young, 1549.
Material for packing articles, Turner & Stoneham, 1673.
Placards, posters, maps, tickets, notices, &c., Tucker, 1734.
Coats, cloaks, vests, overalls, leggings, &c., Marshall, 1805.
Clothes, uniforms, and tissues, Christy (*Fournaise*), 1997.
Composition for water-proofing leather, Wilkins, 2012.
Compound for coating fabrics, Greening, 2059.
Untanned hides, Yates, 2070.
Compound for coating fabrics, Newton (*Requa*), 2074.
Bags, cases, or envelopes, Newton (*Requa*), 2075.
Hydraulic hose, &c. in weaving, Morgan-Brown (*Dodge*), 2200.
Coats, trousers, &c. and ventilating same, Luck, 2226.
Composite fabric with hemmed edges, Roux, 2321.
Threads and tissues or fabrics, Vaughan (*Hostelart*), 2391.
Railway and other wagon covers or sheets, Mowbray, 2736.
Ventilating india-rubber garments, Meiter, 2850.
Paper by white paraffin; applying same, Ralston, 3523.
Water-proof friction match composition, Leonard, 3539.
Coats, cloaks, vests, overalls, leggings, &c., Marshall, 3949.
Objects of architectural decoration, Lipscombe, 4055.
Water-proof packing material for goods, McLaine, 4109.
Threads, fabrics, baked clays, & porous bodies, Clamond, 4176.
Water-proof cloth for packing, Hebblethwaite, 4305.

**Water-supply (regulating).** *See* Valves.

**Water-waste preventers.** *See* Cocks, Valves, &c.

**Water-wheels.** *See* Water-power engines.

**Waxing or satining paper.** *See* Paper (making).

**Wearing-apparel; outer garments for men:**
Overalls made of drawers & jacket combined, Woodward, 551.
Coats without back seams, Berkemyer, 673.
Water-proof life-preserving coat, Goudie, 712.
Economising cloth and labour in making jackets, Howley, 804.
Life-jackets, Watts, 896.
Universal pattern ("patterngraph"), Clark (*Staub, Conrad, [& Co.*), 1281.
Watch-protecting pocket for vests, Porter, 1383.
Floating garments or costumes, Boyton, 1644.
Water-proofing and ventilating overalls, &c., Marshall, 1805.
Button hole casings or linings for, Lake (*Balmforth*), 1822.
Water-proofing clothes, uniforms, &c., Christy (*Fournaise*), 1997.
For saving life from drowning, Lloyd, 2235.
Life-saving suit, Clark (*American Life Saving Suit Co.*), 2283.
Water-proof garment for life saving apparatus, Gade, 2498.
Shields for forming waistcoats, Sèches, 2536.
Cleaning clothing, Lake (*Blake*), 2847.
Water-proof coats with life-saving belt, Meiter, 2850.
Bathing costume, Crisp, 2974.
Setting-out patterns of garments, Clark (*Roudel*), 3022.
Measuring apparatus or conformator, Clark (*Roudel*), 3022.
Life-saving waistcoat with box for food, &c., Schonrock, 3066.
Reversible Inverness cape or Highland cloak, Roger, 3106.
Life-saving garment or floating vest, Le Sueur, 3116.
Hydropathic garments or dress, Dale, 3168.
Paper sleeves and arm coverings for travellers, Loder, 3531.
Preparation for removing paint or grease from, Hayhoe, 3614.
Life-saving garments, Richards (*Richards*), 3777.
Self-inflating life-saving, Lloyd, 3801.
Convertible or multiple garment, Moschcowitz, 3821.
Ventilating water-proof coats, overalls, &c., Marshall, 3949.
Dress for firemen & cloak for inmates, Jensen (*Ostberg*), 3958.
Safety pocket for watches, &c., Macdonald, 4084.
Self-closing fly fronts for trousers, Sparrow, 4135.
Water-proofing clothes, Clamond, 4176.

**Weaving:**
Regulating gauge, &c. in elastic web & other looms, Bonner, 11.
Securing cotters of crank arms, Catlow & Richmond, 32.
Belt shipping device for looms, Burlock (*Chapman*), 59.
Jacquards, Baker, 62.
Regulating and controlling warp beam, Fawcett, 87.
Operating harness frames, Morgan-Brown (*Crompton*), 146.
Stop-motion for looms, Lancaster, 250.
Figured fabrics, Brown & Baird, 258.
Turning crank necks or sweeps of loom shafts, Haggas, 285.
Counterbalancing crank shaft of looms, Haggas, 285.
Ribbons, to imitate Swiss edging, Gedge (*Cornely*), 306.
Bullion fringe without aid of shuttles, Dixon & others, 567.
Regulating tension of healds, Ladd (*Whipple*), 621.
Pattern chains; preventing strain, Lomax & Atherton, 699.
Warp beam tension mechanism, Schuls & Clay, 701.

## Weaving—*cont.*

Jointing "jacks" for working healds, Shaw & others, 749.
Checked and fancy pieces; knocking-off motion, Whyte, 784.
Operating rising and falling and circular boxes, Whyte, 784.
Operating, &c. rising & falling boxes, Collier & Marsden, 790.
Stopping looms; letting off warps, Collier & Marsden, 790.
Regulating tension of warps, Collier & Marsden, 790.
Selecting picking sticks, Collier & Marsden, 790.
Working and controlling rising and falling boxes, Taylor, 848.
Operating slays; loose reed motion, Atherton, 872.
Taking-up and letting-off motion, Atherton, 872.
Two widths of cloth in one loom, Atherton, 872.
Working healds to dispense with treadles, &c., Atherton, 872.
Taking-up and letting-off motions, Bowker, 958.
Weft stop motion, stopping looms, Clark (*Isherwood*), 1006.
Combined pick, pick motion, & weft motion, Hall & Hobson, 1055.
Side motion finger in lieu of weft fork, Hall & Hobson, 1055.
Cutting or punching jacquard cards, Nuttall & Nuttall, 1114.
Closed shed looms for fancy fabrics, Benson (*Wicks*), 1139.
Heddle operating mechanism, Benson (*Wicks*), 1139.
Sectional harness or pattern chains, Benson (*Wicks*), 1199.
Measuring fabrics as woven, Child (*Frömbling*), 1202.
Raising and lowering shuttle boxes, Collier & Marsden, 1349.
Tape ladders for venetian blinds, Wadsworth, 1443.
Muslin or leno curtains, Miller & Jamieson, 1488.
Plain cloth; working healds, Holding, 1568.
Taking off pressure or tension on warps, Haggas & Haggas, 1591.
Crank arms for power looms, Booth & Banks, 1649.
Pneumatic looms, Richardson & Beck, 1650.
Picking motion, Hacking & Hacking, 1669.
Stopping looms, Ziffer, 1730.
Variegated patterns of linen, &c., Webb, 1768.
Kutar & similar cloths in power looms, Simpson & Cross, 1834.
Making metal jacquard cards and cumber boards, Bailey, 1878.
Arranging dobbies for figured borders, &c., Shorrock, 1966.
Swan-down warp or weft, Henderson (*Picard & Cheynet*), 1999.
Loom for hose pipes, &c.; take-up motion, Smith & Smith, 2035.
Moving shuttles in weaving pipes, &c., Smith & Smith, 2035.
Elastic webs, France & Bradsworth, 2163.
Making reeds fast & loose in loose reed looms, Singleton, 2176.
Actuating stopping of looms; break, Singleton, 2176.
Lessening concussion in fast reed looms, Singleton, 2176.
Weft fork and grate; spindle stud, Singleton, 2176.
Weighting yarn beam; treading healds, Singleton, 2176.
Check strap arrangement for shuttles, Singleton, 2176.
Tubular fabrics, Morgan-Brown (*Dodge*), 2200.
Lining hydraulic hose during, Morgan-Brown (*Dodge*), 2200.
Gimp power looms to work automatically, Stone, 2222.
Shuttle bobbins; mounting and fitting same, Stone, 2222.
Working battens & carrying reeds in gimp looms, Stone, 2222.
Compound for forming jacquard cylinders & cards, Tice, 2275.
Compound for forming swells and slips, Tice, 2275.
Arranging shedding motion, Stevenson, 2285.
Narrow fabric looms, Percy, 2362.
Swivel looms for weaving spots, &c. on muslins, Lee, 2529.
Power loom for figured work, Newton (*Fish*), 2614.
Controlling operation of fly shuttles, Newton (*Fish*), 2614.
Operating supplementary shuttles, Newton (*Fish*), 2614.
Keeping warps at uniform tension, Cheetham, 2627.
Compound weighting motion for warp beams, Cheetham, 2627.
Drag motion for yarn or warp beam, Stead & Littlewood, 2636.
Gauze or leno fabrics, Brown, 2654.
Leno or cross, by jacquard power loom, Evans, 2674.
Cloth having two or three styles of weaving, Evans, 2674.
Taking-up & letting-off motions; picking motion, Jones, 2834.
Fabrics partly leno and partly plain cloth with floated pattern [Broadhurst, 2895.
Dobby for looms, Abbott & others, 2908.
Picking motion, Hall & Hobson, 2929.
Dobby for looms, Smith & Lewis, 2963.
Linen or woven work in lace machines, Whiteley, 2961.
Electric stop-motion, Wilkinson, 3032.
Warp delivery and tension gear, Crabtree & Hanson, 3066.
Breaks for "double beat" looms, Bousfield (*Bigelow*), 3124.
Crank arms with adjusting "cotters," Shuttleworth, 3160.
Operating "cloth rollers," Butterworth & others, 3161.
Elastic webs, tapes, & small-wares, Burlock (*Chapman*), 3218.
Arranging and operating needles, Burlock (*Chapman*), 3218.
Tension gear; weft stop-motion, Burlock (*Chapman*), 3218.
Shuttle cam and carrier, Burlock (*Chapman*), 3218.
Adjusting drag upon weft, Wolstenholme & others, 3219.
Actuating shuttles in broad looms, Johnson (*Klein*), 3255.
Picking arms and "side-straps," Roberts & Roberts, 3257.
Cotton elysians, whitneys, beavers, &c., Berry & Jackson, 3344.
Paisley shawls and reversible figured fabrics, Strachan, 3609.
Silk fabric ("camelia silk"), Mewburn (*Graissot*), 3787.
Handkerchiefs, neckties, &c., Mewburn (*Graissot*), 3787.
Locking loose reed loom reeds, Scarborough & Allison, 3791.
Operating cloth beam or roller, Butterworth & others, 3868.
Applying steel bands to crank sweeps, Butterworth & others, [3868.
Sacks or heavy fabrics continuously, Haworth & Thomson, 3937.
Indicating or counting and stopping loom, Haworth & Thom- [son, 3937.
Rising box looms for heavy fabrics, Lee & Crabtree, 3964.
Producing checkered or other varying effects, Martin, 4086.

## Weaving—*cont.*

Bunches of bristles in tapes for brushes, Richardson, 4121.
Employing wet woollen weft in, Bywater & Whitaker, 4214.
Figured fabrics with body of plain weaving, Lodge, 4220.
Lessening concussion in fast reed looms, Singleton, 4315.
Making reeds fast and loose in loose reed looms, Singleton, 4315.
Actuating stopping of looms; breaks, Singleton, 4315.
Weft fork and grate; spindle stud; check strap, Singleton, 4315.
Treading healds; "weighting" yarn beam, Singleton, 4315.
Striking up weft after two or more picks, Clayton & Richmond, [4350.
Changing shuttles; pattern chains, Jackson & others, 4410.
Actuating knives in "dobby" or "index machines," Yates & [Brierley, 4488.

## Weaving carpets, velvets, and other pile fabrics:

Terry elastic fabrics, Turner, 154.
Carpet looms, Collier & Marsden, 790.
Plush, &c. in imitation of seal skins or furs, Dobson, 926.
Carpet looms, Collier & Marsden, 1349.
Terry elastic fabrics, France & Bradsworth, 2163.
Velvet pile carpets, furniture coverings, &c., Picheral, 2344.
Tufted carpet and other tufted pile looms, Holdsworth, 2896.
Operating pile wires, Bousfield (*Bigelow*), 2764.
Constructing and operating jacquard looms, Bousfield (*Bige-* [*low*), 3124.
Velvets, woollen or cotton cords, &c., Dean & Orrah, 3878.
Cutting velvets, cords, &c. as woven, Dean & Orrah, 3878.

## Weaving (harness and heddles):

Multiplying harness frames, Morgan-Brown (*Crompton*), 146.
Forming and fitting healds, Ladd (*Whipple*), 631.
Utilising parts of discarded healds, Booth & Watson, 1716.
Instrument for cutting waste healds, Booth & Watson, 1716.
Forming yarn healds, Harris, 2540.
Eyeletting yarns for forming, Harris 2540.
Doups or slip healds and oval mails, Broadhurst, 2895.
Forming two, &c. sets of eyes in heald shafts, Holding, 4254.

## Weaving (lays and reeds):

Battens for narrow looms; keeping out dirt, Percy, 2362.
Reeds with two or more rows of splits, Gray, 4463.

## Weaving (pickers):

Constructing; arranging spindles, Shackleton & Peel, 849.
Picking stick and picker, Atherton, 872.
Material for, Newton (*Murfey*), 1025.
Joining straps for picking arms, Roberts & Roberts, 1623.
Compound for forming picker sticks and, Tice, 2275.
Barrel pickers to prevent "binding," Lee, 2966.

## Weaving (shuttles):

Making shuttle springs, Pye, 70.
Combined mule and shuttle spindle, Le Moyne, 756.
Employing blocks for constructing, Atherton, 872.
Solid bottom shuttles and hinged skewers, Burwin, 1189.
Locking, in box of pneumatic looms, Richardson & Beck, 1650.
Regulating tension of weft in shuttles, Wilson, 1831.
Securing bobbins and spools upon pegs of, Crabtree, 2179.
Compound for forming shuttle boxes and, Tice, 2275.
Constructing, for enlarged cops or pirns, Stevenson, 2285.
Side plates for steadying skewers of, Stevenson, 2285.
For narrow fabric looms, Percy, 2362.
Shuttle box swells, Cheetham, 2627.
Inserting weft in eyes of, Wolstenholme & others, 3219.
Applying conical rollers to, Johnson (*Klein*), 3255.
Shuttle-box sides, Dean & Orrah, 3878.
For obtaining more equal tension, Rayson, 4060.
Shuttles and shuttle spindles, Morgan-Brown (*Stevens*), 4077.

## Weaving (temples):

Self-acting, Hall & Hall, 428.
Lengthening or shortening self-acting, Bury, 465.
Self-acting, for heavy cloths, Wolstencroft, 631.
Self-acting side, Messrs. Lupton, 824.
Self-acting, O'Neil & Bond, 1212.
Self-acting roller, Wolstencroft, 1406.
For preventing damage to cloth, Holding, 1568.
Arranging creeping, Martin & Firth, 2014.
Adjusting apparatus for self-acting, Hardaker, 2532.
Mounting, to provide for giving way, Kirk & Spivey, 2968.
Nipping rollers for use as, Burlison & Whitaker, 3512.

## Weaving wire. *See* Wire.

## Weighing silk in dyeing. *See* Dyeing.

## Weighing-machines; indicating weight:

Automatic printing device for platform, Brown, 532.
Automatic weight printing device for, Chameroy, 898.
Scales and weights for analysts, Jensen (*Sartorius*), 882.
Bent lever letter balances, Hiscock, 1248.
For indicating weight and price of articles, Néseraux, 1272.
Weighing fibres in feeding carding-engines, Sykes, 1808.

**Weighing-machines; indicating weight—*cont.***

Balance for ascertaining loss of wool in weight by washing [Jensen (*Bockhacker*), 1963.
Portable hydraulic, for weighing railway trucks, &c., Faugère, [2145.
Spring balance, &c. for weighing treacle, &c., Bolton, 2366.
Coal weighing and registering machine, Johnston, 3664.
Combined grain, &c. weighing-machine, sack filler, and auto- [matic register, Goodwin, 3765.
Spring balance, &c. for deducting tare in weighing treacle, &c., [Bolton, 4373.

**Welding metals.** *See* Forging. Rolling.

**Wells:**

Rotary machinery for sinking, Gay, 160.
Pumping apparatus for use in sinking, Davey, 323.
Tube wells, Jensen (*Schönlau*), 1468.
Ventilating, by suction, Corfield, 1572.
Excavator for use in sinking, Deas & Nairn, 1605.
Pneumatic machine for sinking deep, Sholl, 2524.
Indicating water-level in, Nicholas, 2539.
Sinking, Walker, 2556.
Making bore holes for, Bosworth, 3473.
Sinking artesian and other, Canard & Mouillera, 4021.
Boring and clearing apparatus, Canard & Mouillera, 4021.
Helmets for use in descending foul, Boulcott, 4407.

**Wet gas-meters.** *See* Meters.

**Wheat (grinding).** *See* Grinding corn.

**Wheat (hulling, cleaning, &c.).** *See* Grain & seeds.

**Wheat (thrashing).** *See* Thrashing.

**Wheel skates.** *See* Games.

**Wheel-barrows.** *See* Barrows.

**Wheel-bushes.** *See* Bearings.

**Wheels for carriages; traction wheels; tires:**

Material or paper felt for, Gandy, 52.
Detecting flaws in, and forming railway, Wilson & others, 76.
Strengthening bosses of wooden railway, Clark, 80.
Self-lubricating, for coal trams and corves, Lupton, 148.
Shrinking railway wheels on to tires, Gandy, 173.
Applying a second flange to railway tires, Savage, 271.
Fixing tires to railway, Burrell & Valpy, 275.
Fastening tires on railway, Holland, 393.
To revolve independent of each other, Harrison, 461.
Increasing adhesion of locomotive, Jensen (*Bürgin*), 506.
Forging or pressing steel railway and other disc, Edwards, 540.
Tension, for velocipedes and carriages or vehicles, Shaw, 546.
Iron or metal wheels for vehicles and cars, Arnold, 593.
Combined elastic and metal tires, Johnson (*Jeantaud*), 651.
Solid weldless railway and tramway, Hadfield, 814.
Wooden & iron railway; affixing tires to same, Jeffreys, 866.
Iron or metal wheels for carts, &c., Fisher & Marshall, 901.
Applying inner flanged tires to railway, King, 925.
Mounting tires loosely upon cushions, Bland, 978.
Railway carriage and colliery, Berry & Booth, 980.
Mounting, on short axles, Johnson (*Baßolas & Carlier*), 1023.
Attaching tires to railway, Stableford, 1098.
Compound railway, and fastening tires, Allen & Pullman, 1118.
Forming and fixing railway tires, Skewis & Ryland, 1118.
Securing railway wheel tires, &c., Jeffreys & Woodcock, 1174.
Securing tires to railway wheels, Butler, 1196.
Railway wheel tires and attaching same, Haddan, 1198.
Securing tires on wheels, Turner, 1268.
Securing naves or bosses of, on their axles, Turner, 1268.
Keying tires on railway wheels, Haydon, 1288.
Tires for and securing same to railway, Allen & Pullman, 1297.
Keeping spokes at proper tension in driving, Shaw, 1344.
With rails to facilitate transit, Von Wojewodsky, 1416.
Mounting traction engine, Clark (*Millikes*), 1464.
Cores used in casting holes in railway tires, &c., Swift, 1524.
Tire fastening or "key-ring" for, Carlton, 1630.
Fastening and securing tires upon railway, Stroudley, 1678.
Combining metal and paper in making railway, Gandy, 1682.
Fitting up pieces for flanged wheels, Jones, 1697.
Passenger and gun carriage, Newton (*Davis & others*), 1735.
Fixing tires upon railway, Ainscow, 1767.
Graduated wheel tonguer or machine, Singleton, 1798.
Fastening tires on railway and other, Drummond, 1986.
Form and process of casting steel tramway, Hadfield, 2051.
For travelling on either land or water, Thellusson, 2066.
Mounting, connecting, &c. tram-car, Buret de Longagne, 2107.
Coupling, &c. tram-car & other engine, Buret de Longagne, 2107.
Strengthening travelling wheels of grubbers, &c., Craig, 2190.
Arranging crank studs on driving wheels, Barclay, 2201.
Forming naves or stocks, felloes, and spokes, Osmond, 2324.
Composite railway, Prestage, 2332.
Forging tires, Carmont, 2403.

**Wheels for carriages, &c.—*cont.***

Forming one wheel loose on corf & wagon axles, Hudson, 2677.
For bicycles and ordinary carriages, Meyer, 2710.
For lessening vibration and shock, Wise (*Anthoni*), 2828.
Spider or phantom, for bicycles, Carter, 2893.
Making solid metal railway; fastening tyres, Light, 3062.
Wrought iron disc railway and other, Longsdon (*Krupp*), 3149.
Automatic oiling device, Ellis, 3165.
Casting metal car wheels in heated moulds, Hyatt, 3201.
Machine for magnetising engine, Alexander (*Bürgin*), 3248.
Elastic hubs, &c. for road carriages, Lake (*Leverich*), 3278.
Preventing flying of tyres of railway, Glossop, 3277.
Substitute for tram-car wheels, Lillie, 3355.
Bosses for driving wheels of reapers and mowers, Hornsby & [others, 3462.
Tension wheels for bicycles and other vehicles, Aves, 3485.
Composite railway & other, of wood, paper or felt, Clark, 3519.
Bosses & stud bolts for, & fixing tires to railway, Clark, 3519.
Casting railway & tram-car, Hadfield & Mallaband, 3689.
Rolling a number of tires in one piece, Dyer, 3736.
Travelling, for traction engines, Richardson, 3901.
For traction-engines, &c. for turning curves, La Fors, 4383.
With rails to facilitate transit, Von Wojewodsky, 4424.
Rolling railway and other, Brown & Beard, 4449.
Iron rail and tramway wheels; constructing same, Tough, 4496.
For mining trucks or trollies, Souheur, 4499.

**Wheels for machinery:**

Paper material for making cogs or teeth of, Gandy, 52.
Moulding toothed wheels, Scott, 170.
Toothed gearing for hoisting machines, &c., Harfield, 910.
Teeth of chain wheels for capstans, &c., Harfield, 911.
Forming teeth of gutta-percha, &c., Turner, 1268.
Friction, for driving pumps, Woodford & Woodford, 1531.
Fitting fly wheels loosely on shafts, Goubet & Monrocq, 1560.
Gear wheels for excavators, Mills (*Chapman & Souther*), 1638.
Grinding sides of teeth of wheel gearing, Handyside, 1702.
Cutting teeth of spur and bevel wheels, racks, &c., Turner, 1929.
For pin or pirn winding machines, Robinson & Settle, 1961.
Toothed gearing for hay-making machines, Jeffery, 2414.
Cutting conical, spur, and worm wheels, Grube, 2507.
Cutting patterns or models for toothed, Grube, 2507.
Moulding toothed wheels, Billington & Darbyshire, 2709.
Moulding, cutting, and setting out toothed wheels, Scott, 3204.
Noiseless gear for sewing-machines, Blake, 3520.
Grinding sides of wheel gearing teeth, Handyside, 3865.

**Whiffle-trees.** *See* Harness.

**Whips.** *See* Harness.

**Whistles:**

Condensed and heated air, for rotary engines, Boyman, 67.
Low-water alarm, for steam-boilers, Kenyon, 1538.
Forming fire-arm plugs to act as, Chataigneau, 2178.
Adapting, to water-slide gasaliers, Carter, 3102.

**White lead.** *See* Metallic salts.

**White metal (resonant).** *See* Metallic alloys.

**Whitewashing.** *See* Paints.

**Whiting (pulverising).** *See* Grinding.

**Wicks:**

Machine for twisting strands of paper for, Aspinwall, 249.
Using carbon or a carbon combination for, Hellier, 1233.
Forming continuous slivers for candle-wick yarn, Hill, 3738.

**Willeys or teazers.** *See* Spinning (batting).

**Winches.** *See* Hoists.

**Wind-guards for chimneys.** *See* Flues.

**Winding and reeling yarns and threads:**

Stop-motion, Löwenstein & Ward, 78.
Thread into cops for sewing-machine shuttles, Reid, 166.
Endless driving bands for use in, Ramsden, 221.
Mounting and arranging driving bands, Binns, 335.
Regulating and tension apparatus, Girdwood, 568.
For use in sewing-machines, &c., Shanks, 725.
Producing varying motion of building rods, Shanks, 725.
Spooling machines, West, 845.
Bobbins or "pirns" for smallware looms, Hulton & others, 881.
Self-stopping device for full bobbins, Hulton & others, 881.
Self-adjusting thread guide, Hulton & others, 881.
Winding bobbins, reels or spools, Tasker (*Cook & others*), 1043.
Driving bands for use in, Durrance & others, 1131.
Using a reed instead of snick plates in, Haslam & Riley, 1143.
General arrangement & construction of machines, Bash, 1257.
Nicking bobbins and placing thread in same in, Bash, 1257.
Sewing thread, Kerr, 1523.

Winding and reeling yarns and threads—*cont.*

Spooling frame for cone spools, Mathewson (*Paine*), 1679.
Yarns, &c. preparatory to doubling, Stubbs & Corrigan, 1717.
Friction discs, &c. of pirn machines, Robinson & Settle, 1961.
Winding machine clearers, Richards & others, 2136.
Sewing thread in cop form on tubes or spindles, McGee, 2188.
Yarn or thread upon cards for the market, Bollé, 2257.
Winding doubling frames and driving same, Unsworth, 2341.
And doubling yarns and threads, Smith, 3342.
Friction discs, &c. of pirn machines, Robinson & Settle, 3638.
Combined doubling, twisting, & reeling machine, Storer, 3656.
Preventing knotty places in and clearers for, Oliver, 3752.
Doubling winding frames or strand winders; stop-motion, [Raworth & Raworth, 3968.
Sewing thread in cop form on tubes or spindles, McGee, 4313.

Winding or hauling. *See* Hoists.

Winding sewing-machine spools. *See* Sewing.

Winding tobacco as spun. *See* Tobacco.

Windlasses. *See* Hoists.

Windmills. *See* Air and gas engines.

Window-blinds; sun-blinds; sun-shades:

Planes for cutting slats for, Poole (*Lowe*), 29.
Endless bands for rollers of, Ramsden, 221.
Holding or releasing venetian blind cords, Jewsbury, 821.
Sun-blind or shade for window cleaners, &c., Kennedy, 1176.
Spring rollers for, Putnam, 1400.
Tape ladders for venetian blinds, Wadsworth, 1443.
Combining glass &c. for louvre and other, D'Humy, 1710.
Ratchet regulator for, Clark (*O'Donoghue*), 1748.
Tenoning, &c. blind frames, Gardner (*Abercrombie*), 1788.
Mortising and punching holes in laths of venetian, Avis, 1850.
Rolling, &c. out door blinds, shades, &c., Williams, 2116.
Using ships' wind shutes as sun-shades, Allardyce, 2417.
Rollers for, Parker & Elliott, 2484.
Ornamental material for, Cadman, 2580.
Fittings and action of roller blinds, Blencowe, 2606.
Retaining, in position, Winter, 2892.
Rollers for, Paling (*Paling*), 3055.
Tension regulator for cords of, Campbell, 3115.
Sun-blind or shade for window cleaners, &c., Kennedy, 3347.
Mounting, suspending, &c. sun-shades, Slater, 3391.
Machinery for painting laths for, Heywood, 3660.
Fastening and releasing rack pulleys, Macvitie, 3676.
Rack pulleys with adjustable slides, Thompson, 3996.
Fixing laths of, as a secured shutter, Hutchison, 4076.

Windows; window-sashes; window-fastenings:

Latch or fastening for casements, Browning, 23.
Opening and closing, Morgan-Brown (*Colaert*), 90.
Fastening for, Melvill, 554.
Frames for; hanging and locking sashes, Lloyd, 672.
Hanging, opening, and closing sliding sashes, Cole, 698.
Ventilating arrangement for, Currall, 730.
Opening and closing; making sash racks, Beaumont, 823.
Applying cements to window openings, Ross, 850.
Folding windows or french lights, Coupe & Wilson, 1069.
Sash fastener, Ward, 1079.
Outside protection for window cleaners, Kennedy, 1176.
Clamps, &c. for use in making, Gardner (*Abercrombie*), 1264.
For photographic studios, Weyde, 1266.
Opening and closing, Parlour, 1459.
Applying ventilators to, Landau, 1674.
Imitation stained glass, D'Humy, 1710.
Opening, &c. revolving fan-lights, Clark (*O'Donoghue*), 1748.
Tenoning, &c. sash frames, Gardner (*Abercrombie*), 1788.
With inner sash for ventilating, Hyatt, 2015.
Illuminated roofs, walking surfaces, and arches, Hyatt, 2015.
Deck and port lights, Hyatt, 2015.
Opening and shutting sky-lights and windows, Farvis, 2077.
To obviate cleaning from the outside, Macdonald, 2193.
Sash-fastener, Wilton, 2295.
Illuminated gratings, deck-lights, &c., Hyatt, 2359.
Ventilating double window, Rigby & Rigby, 2457.
Applying ventilated tubes to, Coste, 2544.
Sash fasteners, Smith, 2839.
Sashes of wood covered with metal, Larard, 3031.
Fastening for when closed or partially open, Sorby, 3324.
Outside protection for window cleaners, Kennedy, 3347.
Sky and side lights for photographic studios, Slingsby, 3352.
Illuminating ornamental gratings for, Hyatt, 3357.
Fountain for cleaning, Schildberg, 3359.
For prisons, Harris (*Cook & Heath*), 3375.
Sliding piece for, to exclude draft, Ritchie & Hawkins, 3508.
French and similar casements, Lohnstein (*Collings*), 3716.
Self-acting bolt or catch for French casements, Hinde, 3763.
For hansom cabs; raising and lowering same, Spencer, 3912.
Fastening for sliding sashes, Edwards, 3965.
Reflecting sky and roof lights; port & deck-lights, Hyatt, 4063.
Window sashes for ventilating, Hyatt, 4063.

Windows; window-sashes, &c.—*cont.*

Sash fasteners, Atkins, 4062.
Opening, closing, and securing swing, Eyre, 4154.
Oiling axles of sash pulleys, Meakin, 4164.
Brush for washing and cleaning, Sutherland, 4344.
Opening and closing sliding, Barnard, 4347.

Window-shutters. *See* Shutters.

Wind-screens for carriages. *See* Carriages.

Wind-screens for ships. *See* Ship-building.

Wine:

Vessels and cases for holding, Gee, 111.
Improving or maturing, by sunlight, Shand, 212.
Saccharine matter free from fatty matter for, Manbré, 579.
Using packing cases as wine bins, Paris & Adam, 1346.
Tubular screw-apparatus for ageing and refining, Walker, 1866.
Preventing acetic fermentation, &c. in casks, Dixon, 2699.
Deplastering & improving sherry, &c., Hassall & Hehner, 2706.
Utilising wine-making refuse, Haly, 3093.
Ornamental receptacles for, Ross, 4087.
Purifying and improving sherry, &c., Thudichum, 4121.

Winning or getting coal. *See* Mining.

Wipers or wiper wheels. *See* Cams.

Wire; wire-working; weaving wire:

Ribs and stretchers for umbrellas, Holland (*Myers*), 34.
Making rivets for leather work, &c., Lake (*Bray*), 100.
Shaping and cutting paragon & other, Worrall & Worrall, 199.
Using, in making driving bands, &c., Ramsden, 221.
Flat wire springs for stop-motions, &c. Lancaster, 256.
Making bustles or dress improvers, Badcock, 280.
Flattening or shaping, for making cards, &c., Foxwell, 282.
Forming healds or harness, Ladd (*Whipple*), 621.
Making paragon wire from flat wire, Fairbrother, 659.
Making bustles and bosom forms or pads, Lake (*Thomas*), 671.
Producing wire gauze and netting, Lindley, 683.
Wire packing for pistons, &c., Keirby, 757.
Making snap-hooks, Johnson (*Nye*), 765.
Making snap-hooks, Johnson (*Nye*), 766.
Making snap-hooks, Johnson (*Nye*), 767.
Forming crochet needles, Shrimpton, 787.
Coating wire netting, Moore, 831.
For protecting articles, Bonneville (*Perlas*), 1514.
Insulating and braiding wires or cables, Ewen & James, 1712.
Insulating and coating telegraph, Field and Talling, 1888.
Feeding and cutting for wood screw blanks, Frearson, 2005.
Shuttle motion for weaving wire gauze, Smith & Smith, 2085.
Compound for covering telegraph, &c. wires, Greening, 2059.
Making steel wire lanyards and shrouds, Bullivant, 2098.
Hurdles for malt kiln floors, Wise (*Herrmann*), 2128.
Cutting metal strips for wire drawing, Laveissiere, 2297.
Wire mattresses with seats, Schallehn (*Brüks*), 2442.
Furnaces for annealing, Smith & Smith, 2546.
Covering cores of submarine cables, Lucas, 2633.
Belt fasteners, Fairbank & Hollings, 2818.
Mandrels for bending metal pipes, Richards (*Orum*), 2865.
Composition for coating iron wire, Kenyon, 3016.
Making rotary screen drums of triangular, Cousins, 3049.
Endless wires for use in making paper, Rowcliffe, 3054.
Fabric of spiral wire interlaced and locked, Ramsden, 3116.
Heating annealing pots or ovens, Ratcliff & Ratcliff, 3185.
Hardening and tempering umbrella rib wire, Wright, 3194.
Forming flat springs from, Kellogg, 3289.
Working wire-netting machines by steam, &c., Baker, 3368.
Serving telegraph cables, Phillips & Johnson, 3798.
Shuttles for weaving wire fabrics, Rayson, 4060.
Insulating and coating telegraph wires, Henley, 4115.
Polishing and cutting, for comb, &c. pins, Harding & Harding, [4173.
Polishing for needles, &c., Harding & Harding, 4173.
Applying wire fabrics, Ramsden, 4189.
Cutting, heading, &c. for umbrella ribs, Smith & Packer, 4326.
Employing clamps for joining telegraph wires, Smith, 4364.

Wiring hat and bonnet shapes. *See* Hats.

Wood:

Substitute for, Gandy, 52.
Flexible or elastic casts for imitating, Loewenberg, 429.
Rendering, impervious to dry rot and decay, Jones, 482.
Hardening and fire-proofing timber, Jones, 482.
Strengthening and preventing further decay in, Jones, 482.
Fire-proofing and petrifying, Wirth (*Kreitlmayr*), 959.
Transferring designs to, Vaughan (*Magnard*), 1083.
Carbonising, to obtain products, Nicholas, 1116.
Coloring or dyeing, and filling pores with metal, Gardner, 1128.
Seasoning, drying, preserving, & fire-proofing, Gardner, 1128.
Carbonising, Hall & Bainbridge, 1460.
Tools for graining or imitating grain of wood, Fournier, 1389.
Fibre for non-conducting compositions, Leadbetter, 1685.

Wood—*cont.*
Combining glass, &c. for casing, D'Humy, 1710.
Compound for and producing imitation, Loewenberg, 1837.
Carbon compound or "nicolline" for preserving, Nicoll, 1933.
Preserving and fire-proofing, Gedge (*Richard*), 2144.
Preserving struts or uprights, Gedge (*Richard*), 2144.
Disintegrating, for making felt, paper, thread, &c., Noad, 2493.
Preserving beer and other casks from decay, Dixon, 2609.
Utilising waste blocks of, for buildings, Westman, 2691.
Using sawdust for making coffins, Larkman & Diprose, 2788.
Preserving timber from decay, Newton (*Mancion*), 2833.
Using refuse, for fire-lighters, Browne (*Husbands*), 2862.
Using waste pieces of, for match splints, De Bowens, 2900.
Cramp for use in securing timber, Matthews, 2956.
Shaping saddle-tree heads, &c., Edwards & Edwards, 2983.
Coating fabrics for producing imitation, Loewenberg, 3050.
Using sawdust and shavings as fuel, Hodson, 3076.
Using sawdust as fuel, Marshall, 3292.
Retort or "hollow wall" for distillation of, Lyttle, 3579.
Inlaying and ornamenting, Thornton & Thallon, 3632.
Carbonising and distilling, Johnson (*Huyard*), 3759.
Ornamenting articles of fancy wood-work, Brown, 4094.
Using sawdust in making "heraklin," Morgan-Brown [(*Dieckerhoff*), 4155.
Portable apparatus for carving, &c., Lawrence, 4398.

Wood (boring and drilling). *See* Boring.

Wood (cutting and moulding). *See* Cutting wood.

Wood (printing). *See* Printing wood.

Wool. *See* Fibres. Spinning.

Woollen-waste. *See* Rags.

Wool-washing machines. *See* Washing.

Work-boxes. *See* Boxes.

Wrappers (ladies'). *See* Shawls.

Wrappers (oil-cake). *See* Oils (vegetable).

Wrappers or covers for goods. *See* Packing.

Wrecks (raising). *See* Ships (raising).

Wrenches or spanners:
For connecting couplings of hose pipes, Coales, 334.
Screw keys for tightening up nuts of fish-plates, Bowker, 958.
Adjustable spanner or key, Atherton, 1256.
Combined nut spanner and pipe wrench, Wood, 1950.
Extensible ("The rapid"), Johnson (*Boudin*), 2183.
For screw-nuts with ratchet teeth, Follows & others, 3288.

Wringing-machines:
Portable, for family use, Bacon, 1074.
Constructing and holding, Macfarlane, 1274.
Combining, with washing-machines, Mason, 1395.
Applying weight to rollers of, Summerscales & others, 2155.
Combined washing and, Thompson, 2533.
For use in treating yarns with liquids, Reid, 3319.
Sectional wooden rollers for, Selley, 3657.
For wringing skeins of silk, &c., Sauvée (*Corron*), 3757.
Machine for cleansing, wringing, and mangling, Turner, 3847.

Wristbands. *See* Shirts.

Writing cypher correspondence. *See* Cryptographs.

Writing desks and tables. *See* Furniture.

Writing machines (type). *See* Printing paper.

Writing-cases:
Combined blotting-pad, paper-weight, and writing-case, Hen- [derson (*Legrand*), 3052.

## X.

Xyloidine. *See* Explosive compounds.

## Y.

Yarn counters or indicators. *See* Registering.

Yarns. *See* Threads. Spinning. Finishing. &c.

Yeast:
Drying, purifying, and removing bitter taste from, Ellis, 69.

## Z.

Zinc. *See* Smelting.

Zinc oxide. *See* Oxides.

## CONTENTS.

1. Chronological and Descriptive Index of Patents applied for and Patents granted, containing the Abridgments of Provisional and Complete Specifications delivered from December 17 to December 31, 1875.

2. Reprint of leaf (pages 883–884) with Abridgment No. 4234 of the year 1875 inserted. To be substituted for the corresponding leaf in No. 50, Chronological and Descriptive Index for 1875, which was published before the Abridgment No. 4234 could be printed.

3. Title-page and preface to the volume for the year 1875.

4. Title-page to Subject-matter Index for the year 1875.

5. Subject-matter Index of Patents applied for and Patents granted for the year 1875.

6. List of Works printed by order of the Commissioners of Patents.

## NOTICE.

The publication of the Chronological and Descriptive Index, with Indexes of Names and Subject-Matter, will cease with the present No.

As the proceedings connected with the applications for Letters Patent Nos. 1338, 3217, 3782, and 4534 of the year 1875 are not completed, the Abridgments have not been printed. When they are completed, the leaves to which these Abridgments belong will be reprinted with the Abridgments in their proper places, and will be supplied free of charge on application at the Sale Room of the Patent Office.

LONDON:
Printed by George E. Eyre and William Spottiswoode,
Printers to the Queen's most Excellent Majesty.
For Her Majesty's Stationery Office.
Published at the Office of the Commissioners of Patents,
25, Southampton Buildings, Holborn.
Friday, July 14, 1876.

# PATENT OFFICE.

## LIST OF WORKS

PRINTED BY ORDER OF THE COMMISSIONERS OF PATENTS FOR INVENTIONS, AND SOLD AT THE PATENT OFFICE, 25, SOUTHAMPTON BUILDINGS, CHANCERY LANE, LONDON.

### I.

1. SPECIFICATIONS of PATENTS for INVENTIONS, DISCLAIMERS, &c., enrolled under the Old Law, from A.D. 1617 to Oct. 1852, comprised in 13,561 Blue Books, or 691 thick vols. imp. 8vo. Total cost price about 600*l.*

2. SPECIFICATIONS of INVENTIONS, DISCLAIMERS, &c., deposited and filed under the Patent Law Amendment Act from Oct. 1, 1852, to December 1, 1875, comprised in 79,239 Blue Books, or 2,508 thick vols. imp. 8vo. Total cost price, about 2,540*l.*

### II.

INDEXES to PATENTS of INVENTION under the Old Law, from A.D. 1617 to October 1852 :—

1. CHRONOLOGICAL INDEX. 2 vols. (1554 pages). Price 30*s.*; by post, 33*s.* 2*d.*

2. ALPHABETICAL INDEX. 1 vol. (647 pages). Price 20*s.*; by post, 21*s.* 5*d.*

3. SUBJECT-MATTER INDEX. 2 vols. (970 pages). Second Edition, to which is prefixed a key of Terms and Phrases. 1857. Price 2*l.* 16*s.*; by post, 2*l.* 18*s.* 8*d.*

4. REFERENCE INDEX of PATENTS of INVENTION, pointing out the Office in which each enrolled Specification may be consulted, and the Books in which Specifications, Law Proceedings connected with Inventions, &c., have been noticed. 1 vol. (710 pages). Second Edition. 1862. Price 30*s.*; by post, 31*s.* 5*d.*

5. APPENDIX to the REFERENCE INDEX, containing abstracts from such of the early Patents and Signet Bills as describe the nature of the Invention. 1 vol. (91 pages). Price 4*s.*; by post, 4*s.* 6*d.*

INDEXES of APPLICATIONS for PATENTS and PATENTS GRANTED under the Patent Law Amendment Act, 1852.

CHRONOLOGICAL INDEXES :—

For 1852 (Oct. 1—Dec. 31) and 1853. (258 pages.) Price 11*s.*; by post 12*s.*

| | | | *s.* | *d.* | | *s.* | *d.* |
|---|---|---|---|---|---|---|---|
| 1854 | (167 pages), | price | 6 | 0 | by post | 6 | 9 |
| 1855 | (188 „ ) | „ | 6 | 6 | „ | 7 | 2 |
| 1856 | (189 „ ) | „ | 6 | 6 | „ | 7 | 2 |
| 1857 | (196 „ ) | „ | 6 | 6 | „ | 7 | 2 |
| 1858 | (188 „ ) | „ | 6 | 0 | „ | 6 | 8 |
| 1859 | (196 „ ) | „ | 6 | 6 | „ | 7 | 1 |
| 1860 | (209 „ ) | „ | 7 | 0 | „ | 7 | 7 |
| 1861 | (215 „ ) | „ | 7 | 0 | „ | 7 | 7 |
| 1862 | (237 „ ) | „ | 7 | 6 | „ | 8 | 2 |
| 1863 | (220 „ ) | „ | 7 | 0 | „ | 7 | 7 |
| 1864 | (222 „ ) | „ | 7 | 0 | „ | 7 | 7 |
| 1865 | (230 „ ) | „ | 7 | 0 | „ | 7 | 7 |
| 1866 | (239 „ ) | „ | 7 | 0 | „ | 7 | 8 |
| 1867 | (254 „ ) | „ | 7 | 6 | „ | 8 | 2 |
| 1868 | (274 „ ) | „ | 8 | 0 | „ | 8 | 8 |

(*For continuation see* CHRONOLOGICAL AND DESCRIPTIVE INDEXES.)

ALPHABETICAL INDEXES :—

For 1852 (Oct. 1—Dec. 31) and 1853. (181 pages.) Price 13*s.*; by post 13*s.* 8*d.*

| | | | *s.* | *d.* | | *s.* | *d.* |
|---|---|---|---|---|---|---|---|
| 1854 | (119 pages), | price | 7 | 0 | by post | 7 | 7 |
| 1855 | (129 „ ) | „ | 7 | 6 | „ | 8 | 1 |
| 1856 | (143 „ ) | „ | 8 | 0 | „ | 8 | 7 |
| 1857 | (153 „ ) | „ | 8 | 0 | „ | 8 | 8 |
| 1858 | (148 „ ) | „ | 8 | 0 | „ | 8 | 7 |
| 1859 | (188 „ ) | „ | 10 | 0 | „ | 10 | 7 |
| 1860 | (203 „ ) | „ | 10 | 6 | „ | 11 | 1 |
| 1861 | (222 „ ) | „ | 10 | 6 | „ | 11 | 2 |
| 1862 | (240 „ ) | „ | 11 | 6 | „ | 12 | 2 |
| 1863 | (218 „ ) | „ | 11 | 0 | „ | 11 | 8 |
| 1864 | (220 „ ) | „ | 11 | 0 | „ | 11 | 8 |
| 1865 | (236 „ ) | „ | 11 | 6 | „ | 12 | 2 |
| 1866 | (243 „ ) | „ | 11 | 6 | „ | 12 | 2 |
| 1867 | (258 „ ) | „ | 12 | 0 | „ | 12 | 8 |
| 1868 | (291 „ ) | „ | 13 | 0 | „ | 13 | 10 |
| 1869 | (272 „ ) | „ | 13 | 0 | „ | 13 | 9 |
| 1870 | (242 „ ) | „ | 12 | 0 | „ | 12 | 8 |
| 1871 | (52 „ ) | „ | 2 | 0 | „ | 2 | 1½ |
| 1872 | (61 „ ) | „ | 2 | 0 | „ | 2 | 1½ |
| 1873 | (62 „ ) | „ | 2 | 0 | „ | 2 | 2 |
| 1874 | (54 „ ) | „ | 2 | 0 | „ | 2 | 1½ |
| 1875 | (64 „ ) | „ | 2 | 0 | „ | 2 | 2 |

INDEXES TO PATENTS, &c.—*continued.*

SUBJECT-MATTER INDEXES :—

For 1852 (Oct. 1—Dec. 31). (132 pages.) Price 9*s.* by post, 9*s.* 7*d.*

| | | | s. | d. | | s. | d. |
|---|---|---|---|---|---|---|---|
| 1853 (291 pages), | price | | 16 | 0 | ; by post | 16 | 11 |
| 1854 (311 | „ ) | „ | 16 | 6 | „ | 17 | 6 |
| 1855 (311 | „ ) | „ | 17 | 0 | „ | 17 | 11 |
| 1856 (335 | „ ) | „ | 18 | 6 | „ | 19 | 7 |
| 1857 (367 | „ ) | „ | 19 | 6 | „ | 20 | 8 |
| 1858 (360 | „ ) | „ | 19 | 6 | „ | 20 | 6 |
| 1859 (381 | „ ) | „ | 20 | 0 | „ | 20 | 11 |
| 1860 (405 | „ ) | „ | 22 | 0 | „ | 23 | 0 |
| 1861 (442 | „ ) | „ | 23 | 0 | „ | 24 | 1 |
| 1862 (465 | „ ) | „ | 23 | 0 | „ | 24 | 1 |
| 1863 (432 | „ ) | „ | 22 | 0 | „ | 23 | 0 |
| 1864 (446 | „ ) | „ | 23 | 0 | „ | 24 | 1 |
| 1865 (474 | „ ) | „ | 23 | 0 | „ | 24 | 1 |
| 1866 (465 | „ ) | „ | 23 | 0 | „ | 24 | 4 |
| 1867 (508 | „ ) | „ | 25 | 0 | „ | 26 | 2 |
| 1868 (632 | „ ) | „ | 30 | 0 | „ | 31 | 5 |
| 1869 (587 | „ ) | „ | 28 | 0 | „ | 29 | 2½ |
| 1870 (509 | „ ) | „ | 28 | 0 | „ | 29 | 2 |
| 1871 (54 | „ ) | „ | 2 | 0 | „ | 2 | 1½ |
| 1872 (68 | „ ) | „ | 2 | 0 | „ | 2 | 2 |
| 1873 (74 | „ ) | „ | 2 | 0 | „ | 2 | 2 |
| 1874 (103 | „ ) | „ | 2 | 0 | „ | 2 | 2½ |
| 1875 (103 | „ ) | „ | 2 | 0 | „ | 2 | 2½ |

DESCRIPTIVE INDEXES (Abridgments of Provisional and Complete Specifications).

For 1867. In the following quarterly parts :—

1. Quarter ending 31st March. (228 pages). Price 1*s.* 8*d.*; by post, 2*s.* 1*d.*
2. Quarter ending 30th June. (224 pages). Price 1*s.* 8*d.*; by post, 2*s.* 1*d.*
3. Quarter ending 30th September. (196 pages.) Price 1*s.* 8*d.*; by post, 2*s.*
4. Quarter ending 31st December. (232 pages). Price 1*s.* 8*d.*; by post, 2*s.* 1*d.*

For 1868. In the following quarterly parts :—

1. Quarter ending 31st March. (236 pages). Price 1*s.* 8*d.*; by post, 2*s.* 1*d.*
2. Quarter ending 30th June. (218 pages). Price 1*s.* 8*d.*; by post, 2*s.* 1*d.*
3. Quarter ending 30th September. (194 pages). Price 1*s.* 8*d.*; by post, 2*s.*
4. Quarter ending 31st December. (224 pages). Price 1*s.* 8*d.*; by post, 2*s.* 1*d.*

CHRONOLOGICAL AND DESCRIPTIVE INDEXES (containing the Abridgments of Provisional and Complete Specifications, with an Alphabetical Index of Names).

For 1869. In the following quarterly parts :—

1. Quarter ending 31st March. (226 pages, with 7 pages Index of Names=233 pages). Price 1*s.* 8*d.*; by post, 2*s.* 1*d.*
2. Quarter ending 30th June. (234 pages, with 8 pages Index of Names=242 pages.) Price 1*s.* 8*d.*; by post, 2*s.* 1*d.*
3. Quarter ending 30th Sept. (200 pages, with 7 pages Index of Names=207 pages.) Price 1*s.* 8*d.*; by post, 2*s.* 1*d.*
4. Quarter ending 31st Dec. (212 pages with 7 pages Index of Names=219 pages.) Price 1*s.* 8*d.*; by post, 2*s.* 1*d.*

For 1870. In the following quarterly parts :—

1. Quarter ending 31st March. (222 pages, with 7 pages Index of Names=229 pages). Price 1*s.* 8*d.*; by post, 2*s.* 1*d.*
2. Quarter ending 30th June. (208 pages, with 7 pages Index of Names=215 pages). Price 1*s.* 8*d.*; by post, 2*s.* 1*d.*
3. Quarter ending 30th Sept. (168 pages, with 6 pages Index of Names=174 pages.) Price 1*s.* 8*d.*; by post, 2*s.*
4. Quarter ending 31st Dec. (182 pages, with 6 pages Index of Names=188 pages). Price 1*s.* 8*d.*; by post, 2*s.*

CHRONOLOGICAL AND DESCRIPTIVE INDEXES (containing the Abridgments of Provisional and Complete Specifications), with Indexes of Names and Subject-matter.

For 1871. (792 pages, with 77 pages Indexes of Names and Subject-matter = 869 pages). Price 19*s.*; by post, 20*s.* 7*d.*

For 1872. (876 pages, with 92 pages Indexes of Names and Subject-matter = 968 pages). Price 19*s.*; by post, 20*s.* 11*d.*

For 1873. (928 pages, with 126 pages Alphabetical and Subject-matter Indexes = 1,054 pages). Price 19*s.*; by post, 21*s.*

For 1874. (954 pages, with 52 pages Alphabetical Index, and 103 pages Subject-matter Index=1,109 pages). Price 20*s.* 8*d.*; by post, 22*s.* 8*d.*

For 1875. (950 pages, with 64 pages Alphabetical Index and 103 pages Subject-Matter Index=1,117 pages). Price 20*s.* 8*d.*; by post, 22*s.* 8*d.*

## III.

ABRIDGMENTS (in Classes and Chronologically arranged) of SPECIFICATIONS of PATENTED INVENTIONS, from the earliest enrolled to those published under the Act of 1852.

These books are of 12mo. size, and each is limited to inventions of one class only. They are so arranged as to form at once a Chronological, Alphabetical, Subject-matter, and Reference Index to the class to which they relate. Inventors are strongly recommended, before applying for Letters Patent, to consult the classes of Abridgments of Specifications which relate to the subjects of their inventions, and by the aid of these works to select the Specifications they may consider it necessary to examine in order to ascertain if their inventions are new. The *preface* of each volume explains (in most cases) the scope of the series of Abridgments which it contains.

The following series of Abridgments do not extend beyond the end of the year 1866. From that date the Abridgments will be found in chronological order in the "Chronological and Descriptive Index" (see Section II. of this List of Works). It is intended, however, to publish these Abridgments in classes, as soon as the Abridgments of all the Specifications from the earliest period to the end of 1866 have appeared in a classified form. Until that takes place the inventor (by the aid of the Subject Matter Index for each year) can continue his examination of the Abridgments relating to the subject of his invention in the Chronological and Descriptive Index.

*The Classes already published are,—*

1. Drains and Sewers; including the Manufacture of Drain Tiles and Pipes, price 1*s.*, by post 1*s.* 2*d.*
2. Sewing and Embroidering (2*nd edition*), price 1*s.* 6*d.*, by post 1*s.* 9*d.*
3. Manure, price 4*d.*, by post 5*d.*
4. Preservation of Food. Part I., A.D. 1691–1855, price 4*d.*, by post 5*d.*—Part II., A.D. 1856–1866, price 6*d.*, by post 7*d.*
5. Marine Propulsion. Parts I., II., and III., A.D. 1618–1857, price 1*s.* 10*d.*, by post 2*s.* 1*d.*—Part IV., A.D. 1857–1866, price 1*s.* 10*d.*, by post 2*s.* 2*d.*
6. Manufacture of Iron and Steel. Parts I., II., & III., A.D. 1621–1857, price 1*s.* 6*d.*, by post 1*s.* 8½*d.* Part IV., A.D. 1857–1865, price 2*s.* 6*d.*—by post 2*s.* 8*d.*
7. Aids to Locomotion, price 6*d.*, by post 7*d.*
8. Steam Culture, price 8*d.*, by post 9½*d.*
9. Watches, Clocks, and other Timekeepers. Part I., A.D. 1661–1856, price 8*d.*, by post 9½*d.*—Part II., A.D. 1857–1866, price 8*d.*, by post 9½*d.*
10. Fire-arms and other Weapons, Ammunition, and Accoutrements. Part I., A.D. 1588–1858, price 1*s.* 4*d.*, by post 1*s.* 7½*d.*—Part II., A.D. 1858–1866, price 2*s.* 2*d.*, by post 2*s.* 6*d.*
11. Paper. Manufacture of Paper, Pasteboard, and Papier-mâché. Part I., A.D. 1665–1857, price 10*d.*, by post 1*s.*—Part II. (2*nd edition*), A.D. 1858–1866, price 1*s.* 4*d.*, by post 1*s.* 6½*d.*
12. Paper. Cutting, Folding, and Ornamenting; including Envelopes, Cards, Paper-hangings, &c., price 8*d.*, by post 10*d.*
13. Typographic, Lithographic, and Plate Printing. Part I., A.D. 1617–1857, price 2*s.* 8*d.*, by post 3*s.* 3*d.*—Part II., A.D. 1858–1861, price 2*s.*, by post 2*s.* 6*d.*
14. Bleaching, Dyeing, and Printing Yarns and Fabrics. Part I., A.D. 1617–1857, price 3*s.* 4*d.*, by post 4*s.* 1*d.*—Part II., A.D. 1858–1866, price 8*s.*, by post 8*s.* 4½*d.*
15. Electricity and Magnetism, their Generation and Applications. Part I., A.D. 1766–1857, price 3*s.* 2*d.*, by post 3*s.* 11*d.*—Part II., A.D. 1858–1866 (2*nd edition*), price 2*s.* 8*d.*, by post 3*s.* 2*d.*
16. Preparation of India-rubber and Gutta-percha (2*nd edition*), price 1*s.* 2*d.*, by post 1*s.* 4½*d.*
17. Production and Applications of Gas. Part I., A.D. 1681–1858, price 2*s.* 4*d.*, by post 2*s.* 11*d.*—Part II., A.D. 1859–1866 (2*nd edition*), price 2*s.* 4*d.*, by post 2*s.* 8½*d.*
18. Metals and Alloys, price 1*s.* 10*d.*, by post 2*s.* 3½*d.*
19. Photography. Part I., A.D. 1839–1859, price 8*d.*, by post 10*d.*—Part II., A.D. 1860–1866 (2*nd edition*), price 10*d.*, by post 11½*d.*
20. Weaving, Part I., A.D. 1620–1859, price 4*s.*, by post 4*s.* 11½*d.*—Part II., A.D. 1860–1866, price 2*s.* 8*d.*, by post 3*s.* 1*d.*
21. Ship Building, Repairing, Sheathing, Launching, &c. Part I., A.D. 1618–1860, price 2*s.* 4*d.*, by post 2*s.* 11*d.*—Part II., A.D. 1861–1866, price 2*s.* 6*d.*, by post 2*s.* 11*d.*
22. Bricks and Tiles. Part I., A.D. 1619–1860, price 1*s.*, by post 1*s.* 3½*d.*—Part II., A.D. 1861–1866, price 8*d.*, by post 9½*d.*
23. Plating or Coating Metals with Metals. Part I., A.D. 1637–1860, price 10*d.*, by post 1*s.* 0½*d.*—Part II., A.D. 1861–1866 (2*nd edition*), price 6*d.*, by post 7*d.*
24. Pottery. Part I., A.D. 1626–1861, price 10*d.*, by post 1*s.*—Part II., A.D. 1862–1866, price 6*d.*, by post 7*d.*
25. Medicine, Surgery, and Dentistry (2*nd edition*), price 1*s.* 10*d.*, by post 2*s.* 1½*d.*
26. Music and Musical Instruments (2*nd edition*), price 1*s.* 10*d.*, by post 2*s.* 1½*d.*
27. Oils, Fats, Lubricants, Candles, and Soap (2*nd edition*), price 2*s.* 10*d.*, by post 3*s.* 4*d.*
28. Spinning; including the Preparation of Fibrous Materials, and the Doubling of Yarns and Threads. Part I., A.D. 1624–1863, price 24*s.*, by post 25*s.* 5*d.*—Part II., A.D. 1864–1866, price 2*s.*, by post 2*s.* 4*d.*
29. Lace and other Looped and Netted Fabrics, price 10*s.*, by post 10*s.* 8*d.*
30. Preparation and Combustion of Fuel, price 17*s.*, by post 17*s.* 9*d.*
31. Raising, Lowering, and Weighing (2*nd edition*), price 3*s.* 8*d.*, by post 4*s.* 3½*d.*
32. Hydraulics (2*nd edition*), price 4*s.* 8*d.*, by post 5*s.* 5*d.*
33. Railways (2*nd edition*), price 2*s.* 6*d.*, by post 2*s.* 11*d.*
34. Saddlery, Harness, Stable Fittings, &c., price 1*s.*, by post 1*s.* 2*d.*
35. Roads and Ways, price 1*s.*, by post 1*s.* 2*d.*
36. Bridges, Viaducts, and Aqueducts, price 10*d.*, by post 1*s.*
37. Writing Instruments and Materials, price 1*s.* 4*d.* by post 1*s.* 7*d.*
38. Railway Signals and Communicating Apparatus, price 5*s.* 10*d.*, by post 6*s.* 1½*d.*
39. Furniture and Upholstery, price 2*s.*, by post 2*s.* 4*d.*
40. Acids, Alkalies, Oxides, and Salts, price 3*s.* 8*d.*, by post 4*s.* 3*d.*
41. Aeronautics, price 4*d.*, by post 5*d.*
42. Preparation and Use of Tobacco, price 10*d.*, by post 1*s.*
43. Books, Portfolios, Card-cases, &c., price 10*d.*, by post 1*s.*
44. Lamps, Candlesticks, Chandeliers, and other Illuminating Apparatus, price 2*s.* 6*d.*, by post 2*s.* 10½*d.*
45. Needles and Pins, price 6*d.*, by post 7*d.*
46. Carriages and other Vehicles for Railways price 5*s.* 6*d.*, by post 6*s.* 4*d.*
47. Umbrellas, Parasols, and Walking Sticks, price 10*d.*, by post 11½*d.*
48. Sugar, price 1*s.* 10*d.*, by post 2*s.* 1½*d.*
49. Steam Engine. Part I. (in two volumes), A.D. 1618–1859, price 9*s.* 4*d.*, by post 10*s.* 10½*d.*—Part II. (in two volumes), A.D. 1860–1866, price 4*s.* 10*d.*, by post 5*s.* 7*d.*
50. Paints, Colours, and Varnishes, price 1*s.* 10*d.* by post 2*s.* 1½*d.*
51. Toys, Games, and Exercises, price 1*s.*, by post 1*s.* 2*d.*
52. Ventilation, price 1*s.* 10*d.*, by post 2*s.* 0½*d.*
53. Farriery; including the Medical and Surgical Treatment of Animals, price 1*s.*, by post 1*s.* 1½*d.*
54. Artists' Instruments and Materials, price 10*d.* by post 1*s.*
55. Skins, Hides, and Leather, price 1*s.* 6*d.*, by post 1*s.* 8½*d.*
56. Preparing and Cutting Cork; Bottling Liquids; Securing and Opening Bottles, &c., price 1*s.* 6*d.*, by post 1*s.* 9*d.*

57. Brushing and Sweeping, price 1*s.*, by post 1*s.* 2*d.*
58. Nails, Rivets, Bolts, Screws, Nuts, and Washers, price 1*s.* 8*d.*, by post 1*s.* 11½*d.*
59. Hinges, Hinge Joints, and Door Springs, price 8*d.*, by post 9½*d.*
60. Locks, Latches, Bolts, and Similar Fastenings, price, 1*s.* 6*d.*, by post 1*s.* 9*d.*
61. Cooking, Bread-making, and the Preparation of Confectionery, price 1*s.* 10*d.*, by post 2*s.* 1½*d.*
62. Air, Gas, and other Motive Power Engines, price 1*s.* 10*d.*, by post 2*s.* 1½*d.*
63. Water Closets, Earth Closets, Urinals, &c., price 10*d.*, by post 1*s.*
64. Safes, Strong Rooms, Tills, and similar Depositories, price 6*d.*, by post 7*d.*
65. Wearing Apparel. Division I.—Head Coverings, price 1*s.* 4*d.*, by post 1*s.* 6½*d.*
66. Wearing Apparel. Division II.—Body Coverings, price 2*s.* 4*d.*, by post 2*s.* 8½*d.*
67. Wearing Apparel. Division III.—Foot Coverings, price 1*s.* 10*d.*, by post 2*s.* 1½*d.*
68. Wearing Apparel. Division IV.—Dress Fastenings and Jewellery (*in course of preparation*).
69. Anchors, price 6*d.*, by post 7*d.*
70. Metallic Pipes and Tubes, price 1*s.* 8*d.*, by post 1*s.* 11*d.*
71. Mining, Quarrying, Tunnelling, and Well-sinking, price 1*s.* 4*d.*, by post 1*s.* 6½*d.*
72. Milking, Churning, and Cheese-making, price 6*d.*, by post 7*d.*
73. Masts, Sails, Rigging, &c., including Apparatus for Raising and Lowering Ships' Boats, price 1*s.*, by post 1*s.* 2*d.*
74. Casks and Barrels, price 8*d.*, by post 9½*d.*
75. Steering and Manœuvring Vessels, price 1*s.*, by post 1*s.* 2*d.*
76. Optical, Mathematical and other Philosophical Instruments, including Nautical, Astronomical and Meteorological Instruments, price 2*s.* 10*d.*, by post 3*s.* 2*d.*
77. Harbours, Docks, Canals, &c., price 1*s.* 2*d.*, by post 1*s.* 4*d.*
78. Grinding Grain and Dressing Flour and Meal, price 2*s.* 4*d.*, by post 2*s.* 6½*d.*
79. Purifying and Filtering Water, price 1*s.* 2*d.*, by post 1*s.* 3½*d.*

*A Key to the Contents of the above volumes of Abridgments will be found on pages* 11 *to* 15.

## IV.

COMMISSIONERS of PATENTS' JOURNAL, published on the evenings of Tuesday and Friday in each week. Price 2*d.*; by post, 3*d.* Annual Subscription, including postage, 23*s.* 6*d.*, which may be remitted by Post Office Order, made payable at the Post Office, Chancery Lane, to Mr. H. Reader Lack, Clerk of the Commissioners, Patent Office.

Contents of Journal.

1. Applications for Letters Patent.
2. Grants of Provisional Protection for six months.
3. Inventions protected for six months by the deposit of a Complete Specification.
4. Notices to proceed.
5. Patents sealed.
6. Patents extended.
7. Patents cancelled.
8. Patents on which the third year's stamp duty of 50*l.* has been paid.
9. Patents which have become void by non-payment of the stamp duty of 50*l.* before the expiration of the third year.
10. Patents on which the seventh year's stamp duty of 100*l.* has been paid.
11. Patents which have become void by non-payment of the stamp duty of 100*l.* before the expiration of the seventh year.
12. Colonial Patents and Patent Law.
13. Foreign Patents and Patent Law.
14. Weekly price lists of printed Specifications, &c.
15. Official advertisements and notices of interest to Patentees and Inventors generally.

## V.

1. PATENT LAW AMENDMENT ACTS (15 & 16 Vict. cap. 83, A.D. 1852; 16 Vict. cap. 5, A.D. 1853; and 16 & 17 Vict. cap. 115, A.D. 1853); together with the RULES and REGULATIONS issued by the Commissioners of Patents for Inventions, and by the Lord Chancellor and the Master of the Rolls, under the Acts 15 & 16 Vict. c. 83, and 16 & 17 Vict. c. 115. Price 6*d.*; by post, 7*d.*
2. APPENDIX to the SPECIFICATIONS of ENGLISH PATENTS for REAPING MACHINES. By B. Woodcroft, F.R.S. Price 6*s.* 6*d.*; by post, 6*s.* 11*d.*
3. INDEX to ALL INVENTIONS PATENTED in ENGLAND from 1617 to 1854 inclusive, arranged under the greatest number of heads, with parallel references to INVENTIONS and DISCOVERIES described in the scientific works of VARIOUS NATIONS, as classified by Professor Schubarth. By B. Woodcroft, F.R.S. Price 1*s.*; by post, 1*s.* 1*d.*

   The foreign works thus indexed form a portion of the Library of the Commissioners of Patents, where they may be consulted.
4. EXTENSION of PATENTS to the COLONIES.—Abstract of Replies to the Secretary of State's Circular Despatch of January 2, 1853, on the subject of the Extension of Patents for Inventions to the Colonies. Second Edition, with Revised Table, 1861. Price 2*s.*; by post, 2*s.* 1½*d.*
5. PATENT RIGHTS in the COLONIES.—Abstract of Replies to the Secretary of State's Circular Despatch of July 11, 1856, calling for Information as to the form of the application to be made by persons desirous of obtaining Patent Rights in the Colonies, and the expenses attendant on the Grant of such Patent Rights. Price 2*s.*; by post, 2*s.* 1½*d.*
6. COPY of AMERICAN PATENT, SPECIFICATION, and other DOCUMENTS relating to an invention of "A new and useful improved method of "removing incrustation from boilers," presented by Davis Embree, of Dayton, Ohio, United States of America, to The Government and People of the United Kingdom of Great Britain and Ireland, 21st April 1865. Price 6*d.*; by post 6½*d.*
7. SUPPLEMENT to the SERIES of LETTERS PATENT and SPECIFICATIONS from A.D. 1617 to Oct. 1852; consisting for the most part of Reprints of scarce Pamphlets, descriptive of the early patented Inventions comprised in that Series.

CONTENTS.

1. Metallica; or, the Treatise of Metallica, briefly comprehending the doctrine of diverse new metallical inventions, &c. By Simon Sturtevant. (*Letters Patent, dated 28th February*, 1611.) Price, 1*s.* 4*d.*; by post, 1*s.* 5*d.*
2. A Treatise of Metallica, but not that which was published by Mr. Simon Sturtevant upon his Patent, &c. By John Rovenzon. (*Letters Patent, granted A.D.* 1612.) Price 4*d.* by post, 4½*d.*
3. A Commission directed to Sir Richard Wynne and others to inquire upon oath whether Nicholas Page or Sir Nicholas Halse was the first inventor of certaine kilns for the drying of malt, &c. &c. (*Letters Patent, Nos.* 83 *and* 85, *respectively dated* 8*th April*, 1626, *and* 22*nd July*, 1635.) Price 2*d.*; by post, 2½*d.*

4. DUD DUDLEY'S Metallum Martis; or iron made with pit-coale, sea-coale, &c. (*Letters Patent, Nos.* 18 *and* 117, *respectively dated* 22*nd February*, 1620, *and* 2*nd May*, 1638.) Price 8*d.*; by post, 8½*d.*

5. Description of the nature and working of the patent Water-scoop Wheels invented by WILLIAM WHELER, as compared with the raising wheels now in common use. By J. B. W. Translated from the Dutch by Dr. Tolhausen. (*Letters Patent, No.* 127, *dated* 24th *June*, 1642.) Price 2*s.*; by post, 2*s.* 1½*d.*

6. An exact and true definition of the stupendous Water-commanding Engine, invented by the Right Honourable (and deservedly to be praised and admired) EDWARD SOMERSET, Lord Marquis of WORCESTER, &c. &c. (*Stat.* 15 *Car. II. c.* 12, *A.D.* 1663.) Price 4*d.*; by post, 4½*d.*

7. Navigation improved; or the art of rowing ships of all rates in calms, with a more easy, swift, and steady motion than oars can. By THOMAS SAVERY. (*Letters Patent, No.* 347, *dated* 10*th January*, 1696.) Price 1*s.*; by post, 1*s.* 0½*d.*

8. The Miner's Friend; or an engine to raise water by fire described, &c. By THOMAS SAVERY. (*Letters Patent, No.* 356, *dated* 25*th July*, 1698, *and Stat.* 10 *&* 11 *Will. III. No.* 61, *A.D.* 1699.) Price 1*s.*; by post, 1*s.* 1*d.*

9. Specimina Ichnographica; or a brief narrative of several new inventions and experiments, particularly the navigating a ship in a calm, &c. By JOHN ALLEN, M.D. (*Letters Patent, No.* 513, *dated* 7*th August*, 1729.) Price 8*d.*; by post, 9*d.*

10. A description and draught of a new invented Machine for carrying vessels or ships out of or into any harbour, port, or river, against wind and tide, or in a calm, &c. By JONATHAN HULLS. (*Letters Patent, No.* 556, *dated* 21*st December*, 1736.) Price 8*d.*; by post, 9*d.*

11. An historical account of a new Method for extracting the foul air out of ships, &c., with the description and draught of the machines by which it is performed, &c. By SAMUEL SUTTON, the Inventor. To which are annexed two relations given thereof to the Royal Society by Dr. Mead and Mr. Watson. (*Letters Patent, No.* 602, *dated* 16*th March* 1744.) Price 1*s.*; by post, 1*s.* 1*d.*

12. The letter of Master WILLIAM DRUMMOND for the construction of machines, weapons, and engines of war for attack or defence by land or sea, &c. Dated the 29th September 1626 (*Scotch Patent, temp. Car. II.*) Price 4*d.*; by post, 4½*d.*

13. Contributions to the History of the Steam Engine, being two deeds relating to the erection by Messrs. Boulton and Watt of steam engines on the United Mines at Gwennap, Cornwall, and at Werneth Colliery, near Oldham, Lancashire. From the originals in the Patent Office Library. Price 10*d.*; by post, 10½*d.*

---

A FREE LIBRARY and READING ROOMS are open to the Public daily, from 10 till 4 o'clock, in the Office of the Commissioners of Patents, 25, Southampton Buildings, Chancery Lane. In addition to the printed Specifications, Indexes, and other publications of the Commissioners, the Library includes a Collection of the Leading British and Foreign Scientific Journals, and text-books in the various departments of science and art.

Complete sets of the Commissioners of Patents' publications (each set including more than 3,410 volumes, and costing for printing and paper upwards of 3,220*l.*), have been presented to the authorities of the most important towns in the kingdom, on condition that the works shall be rendered daily accessible to the public, for reference or for copying, free of all charge. The following list gives the names of the towns, and shows the place of deposit, so far as ascertained, of each set of the works thus presented :—

Aberdeen (*Mechanics' Institution*).
Belfast (*Queen's College*).
Beverley (*Guildhall*).
Birmingham (*Central Free Library—Reference Department, Ratcliff Place*).
Blackburn (*Free Library and Museum, Town Hall Street*).
Bolton-le-Moors (*Public Library, Exchange Buildings*).
Bradford, Yorkshire (*Public Free Library*).
Brighton (*Town Hall*).
Bristol (*City Library, King Street*).
Burnley (*Office of the Burnley Improvement Commissioners*).
Bury.
Carlisle (*Public Free Library, Police Office*).
Cork (*Royal Cork Institution, Nelson Place*).
Crewe (*Railway Station*).
Derby (*Free Public Library*).
Dublin (*Royal Dublin Society, Kildare Street*).
Dundalk (*Free Library*).
Gateshead (*Mechanics' Institute*).
Glasgow (*Stirling's Library, Miller Street*).
Grimsby, Great (*Mechanics' Institution, Victoria Street*).
Halifax.
Huddersfield (*Improvement Commissioners' Offices, South Parade*).
Hull (*Mechanics' Institute, George Street*).
Ipswich (*Museum Library, Museum Street*).
Keighley (*Mechanics' Institute, North Street*).
Kidderminster (*Public Free Library, Public Buildings, Vicar Street*).
Leamington Priors (*Public Free Library, Town Hall*).
Leeds (*Public Library, Infirmary Buildings*).
Leicester (*Free Library, Wellington Street*).
Liverpool (*Free Public Library, William Brown Street*).
London (*British Museum*).
Macclesfield (*Useful Knowledge Society*).
Maidstone (*Free Library*).
Manchester (*Free Library, Camp Field*).
Montrose (*Free Library*).
Newcastle-upon-Tyne (*Literary and Philosophical Society*).
Newport, Monmouth (*Commercial Room, Town Hall*).
Northampton (*Museum Buildings, Town Hall*).
Nottingham (*Free Library*).
Oldham (*School of Arts and Sciences, Lyceum*).
Paisley (*Government School of Design, Gilmour Street*).
Plymouth (*Mechanics' Institute, Princess Square*).
Preston, Lancashire (*Dr. Shepherd's Library, the Institution, Avenham*).
Reading (*Literary, Scientific, and Mechanics' Institution, London Street*).
Rochdale (*Free Public Library, Town Hall*).
Rotherham (*Board of Health Offices, Howard Street*).
Salford (*Royal Museum and Library, Peel Park*).
Sheffield (*Free Public Library, Surrey Street*).
Southampton (*Hartley Institution*).
Stirling (*Burgh Library, Town House, Broad Street*).
Stockport (*Museum, Vernon Park*).
Sunderland (*Corporation Museum, Athenæum, Fawcett Street*).
Wakefield (*Mechanics' Institution, Barstow Square*).
Warrington (*The Museum and Library*).
Wexford (*Mechanics' Institute, Crescent Quay*).
Wigan.
Wolverhampton (*Free Library*).
Wolverton (*Railway Station*).
York (*Lower Council Chamber, Guildhall*).

The Commissioners' publications have also been presented to the following Public Offices, Seats of Learning, Societies, British Colonies, and Foreign States :—

*Public Offices, &c.*

Admiralty—Chatham Dockyard.
Sheerness ditto.
Portsmouth ditto.
Devonport ditto.
Pembroke ditto.
Artillery Institution, Woolwich.
Small Arms Factory, Enfield.
War Office, Pall Mall.
India Office.
Royal School of Mines, &c., Jermyn Street, Piccadilly.
Dublin Castle, Dublin.
Record and Writ Office, Chancery, Dublin.
Office of Chancery, Edinburgh.
Museum of Science and Art, Edinburgh.

*Seats of Learning and Societies.*

Cambridge University.
Trinity College, Dublin.
Queen's College, Galway.
Incorporated Law Society, Chancery Lane, London.

*British Colonies.*

Barbados.
British Guiana.
Canada—Library of Parliament, Ottawa.
Bureau of Agriculture, Toronto.
Board of Arts and Manufactures, Montreal.
Cape of Good Hope.
Ceylon.
India—Bengal.
Bombay.
Madras.
India—North-west Provinces.
Jamaica.
Malta.
Mauritius.
New Brunswick.
Newfoundland.
New South Wales.
New Zealand.
Nova Scotia.
Prince Edward Island.
South Australia—Colonial Institute, Adelaide.
Tasmania.
Trinidad.
Victoria—Parliamentary Library, Melbourne.
Victoria—Patent Office, Melbourne.
Public Library, Melbourne.

*Foreign States.*

Argentine Republic—Buenos Ayres.
Austria—Athenæum, Vienna.
Polytechnic University, Vienna.
Belgium—Ministère de l'Intérieur, Brussels.
Musée de l'Industrie, Brussels.
France—Bibliothèque Nationale, Paris.
Conservatoire des Arts et Métiers, Paris.
Germany—Alsace—Société Industrielle, Mulhouse.
Bavaria—Königliche Bibliothek, Munich.
Gotha—Ducal Friedenstein Collection.
Prussia—Königliche Polytechnische Schule, Aix-la-Chapelle.
Gewerbe-Akademie, Berlin.
Königliche Bibliothek, Berlin.
Königliche Polytechnische Schule, Hanover.
Saxony—Polytechnische Schule, Dresden.
Wurtemberg—Bibliothek des Musterlagers, [Stuttgart.
Italy—Ufficio delle Privative, Rome.
Netherlands—Harlem.
Russia—Bibliothèque Impériale, St. Petersburg.
Spain—Madrid.
Sweden—Teknologiska Institutet, Stockholm.
United States—Patent Office, Washington.
Astor Library, New York.
State Library, Albany.
Franklin Institute, Philadelphia.
Free Public Library, Boston.
Library Company, Philadelphia.
Free Public Library, Chicago.
Peabody Institute, Baltimore.
Historical Society, Madison, Wisconsin.
Cornell University, Ithaca, N.Y.
Mercantile Library, St. Louis.
Mechanics' Institute, San Francisco.

---

Grants of complete series of Abridgments of Specifications have been made to the undermentioned Mechanics', Literary, and Scientific Institutions :—

Aberystwith (*Literary and Working Men's Reading Room*).
Alnwick (*Scientific and Mechanical Institution*).
Alton (*Mechanics' Institution*).
Altrincham (*Altrincham and Bowdon Literary Institution*).
Ashburton (*Ashburton Library, East Street*).
Ashby-de-la-Zouch (*Mutual Improvement Society*).
Ashton-under-Lyne (*Mechanics' Institution*).
Aylesbury (*Kingsbury Mechanics' Institute*).
Bacup (*Mechanics' Institution*).
Ballymoney (*Town Hall*).
Banbridge (*Literary and Mutual Improvement Society*).
Banbury (*Mechanics' Institution*).
Barnstaple (*Literary and Scientific Institution*).
Basingstoke (*Mechanics' Institute and Club*).
Bath (*Athenæum*).
(*City Free Library*).
(*Royal Literary and Scientific Institution*).
Batley (*Mechanics' Institution*).
Battle (*Young Men's Christian Association*).
Belfast (*Athenæum*).
(*Northern Law Club*).
(*People's Literary Institute*).
Berkhampstead, Great (*Mechanics' Institute*).
(*Working Men's College*).
Birkenhead (*Literary and Scientific Society*).
Birmingham (*Bloomsbury Institution*).
(*Central Lending Library*).
(*Free Library and News Room, Gosta Green*).
(*Graham Street Institution*).
(*Law Students' Society*).
Bodmin (*Literary Institution*).
Bolton (*Mechanics' Institute*).
(*School of Art*).
Bournemouth (*Library and Reading Room*).
Bradford, Yorkshire (*Church Institute*).
(*Library and Literary Society*).
(*Mechanics' Institute*).
Braintree (*Braintree and Bocking Literary and Mechanics' Institution*).
Brampton, near Chesterfield (*Local Museum and Literary Institute*).
Breage, Cornwall (*Institution*).
Bristol (*Athenæum*).
(*Institution*).
(*Law Library Society*).
(*Library, Queen's Road*).

Bromsgrove (*Literary and Mechanics' Institute*).
Burnley (*Literary Institution*).
(*Mechanics' Institution*).
Burslem (*Wedgwood Institute*).
Bury (*Athenæum*).
Bury St. Edmund's (*Athenæum*).
(*Mechanics' Institution*).
Calne (*Literary Institution*).
Canterbury (*Museum*).
Cardigan (*Mechanics' Institute*).
Carharrack (*Literary Institute*).
Carmarthen (*Literary and Scientific Institution*).
Cheddar (*Literary Institution*).
Cheltenham (*Permanent Library*).
(*Working Men's Club*).
Chertsey (*Literary and Scientific Institution*).
Chester (*City Library and Reading Room*).
Chesterfield (*Mechanics' Institution*).
Chichester (*Literary Society and Mechanics' Institute*).
Chippenham (*Literary and Scientific Institution*).
Christchurch (*Working Man's Institute*).
Cockermouth (*Mechanics' Institution*).
Coggeshall (*Literary and Mechanics' Institution*).
Colchester (*Literary Institution*).
(*Young Men's Christian Association*).
Compstall (*Athenæum*).
Coventry (*Free Library*).
(*Institute*).
(*School of Art*).
Crediton (*Working Men's Club*).
Crewe (*Mechanics' Institution*).
Dartmouth (*Mutual Improvement Society*).
Deal (*Deal and Walmer Institute*).
Derby (*Mechanics' Institution*).
Devonport (*Mechanics' Institute*).
Dewsbury (*Mechanics' Institution*).
Diss (*Reading Room and Library*).
Doncaster (*Free Library*).
(*Great Northern Mechanics' Institute*).
(*Young Men's Christian Association*).
Dorchester (*County Museum and Library*).
(*Working Men's Institute*).
Dudley (*Mechanics' Institution*).
Dukinfield (*Village Library and Reading Room*).
Dumbarton (*Philosophical and Literary Society*).
Dumfries (*Mechanics' Institution*).
Dundee (*Young Men's Christian Association and Literary Institution*).
Durham (*Mechanics' Institute*).
Eagley, Bolton-le-Moors (*Library and Institute*).
Ealing (*Mechanics' Institute*).
Earlestown, Newton-le-Willows (*Mutual Improvement Society*).
East Greenwich (*Working Men's Institute*).
East Retford (*Literary and Mutual Improvement Society*).
Ebbw Vale (*Literary and Scientific Institute*).
Edinburgh (*Philosophical Institution*).
(*Royal Scottish Society of Arts*).
(*Watt Institution and School of Art*).
(*Working Men's Club*).
Egham (*Literary Institute*).
Egremont (*Mechanics' Institute*).
(*Workmen's Institute*).
Exeter (*Devon and Exeter Albert Memorial Museum, School of Science and Art, and Free Library*).
(*Devon and Exeter Institution*).
Farnham (*Young Men's Association*).
Faversham (*Institute*).
Fowey (*Working Men's Reading Rooms*).
Frome (*Literary and Scientific Institution*).
(*Mechanics' Institution*).
Gainsborough (*Literary, Scientific, and Mechanics Institute*).
Garforth, near Leeds (*Working Men's Club*).
Glasgow (*Athenæum*).
(*Central Working Men's Club and Institute*).
(*City Industrial Museum, Kelvington Park*).
(*Institution of Engineers in Scotland*).
(*Mechanics' Institution, Bath Street*).
(*Philosophical Society*).
Glastonbury (*Literary Institute*).
Godmanchester (*Working Men's Reading Room*).
Gosport (*Gosport and Alverstoke Literary and Scientific Institution*).
Grantham (*Public Literary Institution*).
Gravesend (*Gravesend and Milton Library and Reading Rooms*).
Guernsey (*Working Men's Association*).
Guildford (*Working Men's Institution*).
Hadleigh (*The Reading Room*).
Halesworth (*Mechanics' Institute*).
Halifax (*Literary and Philosophical Society*).
(*Mechanics' Institute*).
(*Working Men's College*).
Halstead (*Literary and Mechanics' Institute*).
Haslingdon (*Institute*).
Hastings (*Literary and Scientific Institute*).
(*Mechanics' Institution*).
Hawarden (*Literary Institution*).
Hebden Bridge, near Todmorden (*Mechanics' Institution*).
Helston (*Reading Room and Library*).
Hemel Hempsted (*Mechanics' Institute*).
Hereford (*Natural History, Philosophical, Antiquarian, and Literary Society*).
Hertford (*Literary and Scientific Institution*).
Heywood (*Mechanics' Institute*).
Hitchin (*Mechanics' Institute*).
Holbeck (*Mechanics' Institution*).
Hollingwood (*Working Men's Club*).
Holt, Norfolk (*Literary Society*).
Holywell Green (*Mechanics' Institution*).
Horncastle (*Mechanics' Institution*).
Huddersfield (*Mechanics' Institution*).
Hull (*Church Institute*).
(*Literary, Scientific, and Mechanics' Institute*).
(*Lyceum Library*).
(*Royal Institution, Albion Street*).
(*Young People's Institute*).
Huntingdon (*Literary and Scientific Institution*).
Ipswich (*Working Men's College*).
Kendal (*Christian and Literary Institute*).
(*Highgate Mechanics' Institute*).
(*Working Men's Institute*).
Kidderminster (*Mechanics' Institute*).
Lee, Kent (*Working Men's Institution*).
Leeds (*Chapeltown Branch Library*).
(*Church Institute*).
(*Holbeck Branch Library*).
(*Hunslet Branch Library*).
(*Leeds Library*).
(*Mechanics' Institution and Literary Society*).
(*Philosophical and Literary Society*).
(*Working Men's Institute*).
(*Young Men's Christian Association*).
Leek, Staffordshire (*Literary and Mechanics' Institution*).
Leicester (*Law Society*).
(*Young Men's Christian Association*).
Leighton Buzzard (*Working Men's Mutual Improvement Society*).
Leith (*Mechanics' Subscription Library*).
Lewes (*Fitzroy Memorial Library*).
(*Mechanics' Institute*).
(*School of Science and Art*).

Lincoln (*Mechanics' Institute*).
Liverpool (*Institute*).
(*Medical Institution*).
(*Polytechnic Society*).
Llanelly (*Chamber of Commerce and Reading Room*).
Lockwood (*Mechanic's Institution*).
London (*Albert Working Men's Club, Knightsbridge*).
(*Bank of England Library and Literary Association*).
(*Beaumont Institute, Mile End*).
(*Bedford Working Men's Institute, Spitalfields*).
(*Birkbeck Institution, Southampton Buildings, Chancery Lane*).
(*Bow and Bromley Institute, Bow Road*).
(*Bow Common Working Men's Club, Devon's Road, Bow Common*).
(*Christchurch Working Men's Club, New Street, Lark Hall Lane, Clapham*).
(*Clerkenwell Club, Lower Rosoman Street*).
(*Holloway Working Men's Club and Institute, Holloway Road*).
(*Literary and Scientific Institution, Walworth*).
(*London Association of Foremen Engineers and Draughtsmen*).
(*London Institution, Finsbury Circus*).
(*London Library, St. James*).
(*Royal Institute of British Architects, Conduit Street, Hanover Square*).
(*St. James and Soho Working Men's Club, Rupert Street, Soho*).
(*St. Mary Charterhouse Working Men's Club, Golden Lane*).
(*South London Working Men's College, Blackfriars Road*).
(*Southwark Working Men's Club, Broadwall, Stamford Street*).
(*Working Men's Club, Brixton Hill*).
(*Working Men's Club, St. Mark's, Victoria Docks*).
(*Working Men's Club and Institute, Battersea*).
(*Working Men's Club and Institute Union, Strand*).
(*Working Men's Club, Triangle, Hackney*).
(*Working Men's College, Great Ormond Street*).
Longwood (*Mechanics' Institution*).
Lowestoft (*Library and Reading Room*).
Lye (*Institution*).
Lymington (*Literary Institute*).
Madeley, Shropshire (*Anstice Memorial, Workmen's Club and Institute*).
Maidstone (*St. Paul's Literary Institute*).
(*Working Men's Club and Institute*).
Maldon, Essex (*Literary and Mechanics' Institute*).
Manchester (*Ancoats Branch Free Library*).
(*Athenæum*).
(*Campfield Free Lending Library*).
(*Cheetham Branch Library*).
(*Chorlton and Ardwick Branch Free Library*).
(*Hulme Branch Free Library*).
(*Law Library*).
(*Mechanics' Institution*).
(*Natural History Museum, Peter Street*).
(*Owen's College*).
(*Portico Library, Mosley Street*).
(*Rochdale Road Branch Free Library*).
(*Royal Exchange Library*).
(*Scientific and Mechanical Society*).
Manningtree (*Manningtree and Mistley Literary and Scientific Institution*).
Mansfield (*Co-operative Industrial Society*).
(*Mechanics', Artizans', and Apprentices' Library*).
(*Mechanics' Institute*).
Marlborough (*Reading and Mutual Improvement Society*).
(*Working Men's Hall*).
Melksham (*Mutual Improvement Society*).
Melton Mowbray (*Literary Institute*).
Mere, near Bath (*Literary Association*).
Middlesborough (*Iron and Steel Institute*).
(*Mechanics' Institution*).
Middlewich (*Literary and Scientific Institution*).
Modbury (*Mechanics' Institution*).
Mossley (*Mechanics' Institute*).
Newark (*Mechanics' Institute*).
Newbury (*Literary and Scientific Institution*).
Newcastle-upon-Tyne (*Mechanics' Institution*).
(*Working Men's Club*).
New Mills, near Stockport (*Mechanics' Institute*).
Newport, Isle of Wight (*Young Men's Society and Reading Room*).
Northampton (*Mechanics' Institute*).
North Shields (*Free Library*).
Nottingham (*Mechanics' Institution*).
(*Subscription Library, Bromley House*).
Oldham (*Mechanics' Institution, Werneth*).
Ormskirk (*Public Library*).
Oswestry (*Institute*).
Over, Cheshire (*Working Men's Institute*).
Oxford (*North Oxford Working Men's Club*).
Patricroft (*Mechanics' Institution*).
Pembroke Dock (*Mechanics' Institute*).
Pendleton (*Mechanics' Institution*).
Penzance (*Institute*).
(*Penzance Library*).
(*Working Men's Association*).
Perth (*Mechanics' Library, High Street*).
Peterborough (*Mechanics' Institution*).
Plymouth (*Working Men's Institute*).
Pontypool (*Literary Institute*).
Poole (*Literary and Scientific Institution*).
(*Mechanics' Institute*).
Port Glasgow (*Public Library*).
Portsea Island (*Young Men's Christian Association*).
Preston (*Institution for the Diffusion of Knowledge*).
Redruth (*Redruth Institution*).
Reigate (*Mechanics' Institution*).
Richmond (*Working Men's College*).
Rotherham (*Rotherham and Masbro' Literary and Mechanics' Institute*).
Royston (*Institute*).
Rusholme (*Public Hall and Library*).
Ryde, Isle of Wight (*Philosophical and Scientific Society*).
(*Young Men's Christian Association and Literary Institute*).
Saffron Walden (*Literary and Scientific Institution*).
St. Just (*Institution*).
St. Leonards (*Mechanics' Institution*).
(*Working Men's Club*).
Salford (*Working Men's Club*).
Salisbury (*Literary and Scientific Institution*).
Saltaire (*Literary Institute*).
Scarborough (*Mechanics' and Literary Institute, Vernon Place*).
Selby (*Mechanics' Institute*).
Sevenoaks (*Literary and Scientific Institution*).
Shaftesbury (*Literary Institution*).
Sheerness (*Literary Institute*).
Sheffield (*Branch Free Library*).
(*Brightside Branch Library*).
(*Literary and Philosophical Society, School of Arts*).
(*Mechanics' Institution*).
Shepton Mallet (*Reading and Mutual Improvement Society*).
Sidmouth (*Mechanics' Hall*).
Skipton, Yorkshire (*Mechanics' Institute*).

Slough (*Mechanics' Institute*).
Smethwick, Staffordshire (*Library, Reading Room, and Literary Institute*).
Southampton (*Polytechnic Institution*).
(*Workmen's Hall*).
Southport (*Athenæum*).
South Shields (*Public Free Library*).
Southwell (*Literary Institution*).
Spalding (*Christian Young Men's Association*).
(*Mechanics' Institute*).
Stafford (*Mechanics' Institution*).
Staines (*Literary and Scientific Institution*).
(*Mechanics' Institute and Reading Room*).
Stalybridge, Cheshire (*Mechanics' Institution*).
Stamford (*Institution*).
Stourbridge (*Associated Institute*).
(*Church of England Association*).
(*Iron Works Reading Room and Library*).
(*Mechanics' Institution*).
(*Working Men's Institute*).
Stowmarket (*Literary Institution*).
Stratford (*Working Men's Hall*).
Sudbury, Suffolk (*Literary and Mechanics' Institute*).
Sunderland (*Working Men's Club*).
Swansea (*Royal Institution of South Wales*).
(*South Wales Institute of Engineers*).
(*Working Man's Institute*).
Tavistock (*Mechanics' Institute*).
(*Public Library*).
Thornton, near Bradford (*Mechanics' Institute*).
Thornton Heath, Croydon (*Workmen's Club*).
Todmorden (*Mechanics' Institution*).
Truro (*Cornwall County Library*).
(*Institution*).
(*Royal Institution of Cornwall*).
Tunbridge (*Literary and Scientific Institute*).
(*Mechanics' Institute*).
Tunbridge Wells (*Mechanics' Institution*).
(*Society of Literature and Science*).
Turton, near Bolton (*Chapel Town Institute*).
Tynemouth (*Free Public Library*).
Ulverston (*Temperance Hall*).
Uttoxeter (*Mechanics' Literary Institute*).
Uxbridge (*Uxbridge and Hillingdon Reading and News Room Institute*).
Wakefield (*Mechanics' Institute*).
Wallingford (*Free Library and Literary Institute*).
Walsall (*Free Library*).
Walsham-le-Willows, Suffolk (*Institute*).
Ware (*Institute*).
Warminster (*Athenæum*).
Watford (*Literary Institute*).
(*Public Library*).
Wellingborough (*Working Men's Club*).
Wellington (*Young-Men's Christian Association*).
Wells, Somerset (*Mechanics' Institution, Grove Lane*).
(*Young Men's Society*).
West Bromwich (*Free Library*).
Whaleybridge (*Mechanics' Institute*).
Whitby (*Institute*).
(*Museum*).
(*Subscription Library*).
Whitehaven (*Mechanics' Institute*).
(*Working Men's Reading Room*).
Whitstable (*Institute*).
Wilton (*Literary Institute*).
Winchester (*Mechanics' Institution*).
(*Training College*).
Winsford (*Town Hall Reading Room*).
Wirksworth (*Mechanics' Institution*).
Wisbeach (*Mechanics' Institute*).
Witham (*Literary Institution*).
Witney (*Athenæum*).
Wolverhampton (*Law Library*).
(*Library*).
Wolverton (*Institute*).
Woodbridge (*Literary and Mechanics' Institute*).
Worcester (*Railway Literary Institute*).
(*Workmen's Hall*).
Workington (*Mechanics' Institute*).
Yarmouth, Great (*Parochial Library and Museum*).
Yeovil, Somerset (*Mutual Improvement Society*).
York (*Church Institute*).
(*Institute of Popular Science, &c.*)
(*North-Eastern Railway Library and Reading Room*).

---

Presentations of portions of the Works, published by order of the Commissioners of Patents, have been made to the following Libraries:—

Armagh (*Town Clerk's Office*).
Aylesbury (*Mechanics' Institution and Literary Society, Kingsbury*).
Birmingham (*Institution of Mechanical Engineers, Newhall Street*).
Boston, Lincolnshire (*Public Offices, Market Place*).
Cambridge (*Free Library, Jesus Lane*).
Cardiff (*Free Library and Museum*).
Chester (*Mechanics' Institute, St. John Street*).
Coalbrookdale (*Literary and Scientific Institution*).
Coventry (*Watchmakers' Association*).
Dublin (*Dublin Library, D'Olier Street*).
Dundee (*Association of Watchmakers and Jewellers*).
Edinburgh (*Horological Society*).
Ennis (*Public Library*).
Gloucester (*Working Men's Institute, Southgate Street*).
Guernsey (*Public Record Office*).
Guildford (*Mechanics' Institute*).
Ipswich (*Mechanics' Institute, Tavern Street*).
Kew (*Library of the Royal Gardens*).
Leominster (*Literary Institute*).
London (*House of Lords*).
(*House of Commons*).
(*Hon. Soc. of Gray's Inn*).
London (*Hon. Soc. of Inner Temple*).
( „ „ *Lincoln's Inn*).
( „ „ *Middle Temple*).
(*Aeronautical Society*).
(*British Horological Institute*).
(*General Post Office*).
(*Guildhall Library*).
(*Institution of Civil Engineers*).
(*Odontological Society*).
(*Royal Society*).
(*Society of Arts*).
(*United Service Museum*).
Manchester (*Literary and Philosophical Society, George Street*).
——— (*Mechanics' Institution, David Street*).
Newcastle-upon-Tyne (*North of England Institute of Mining Engineers*).
Over Darwen (*Free Public Library*).
Oxford (*Bodleian Library*).
Stretford, near Manchester (*Mechanics' Institute*).
Swindon, New (*Mechanics' Institute*).
Tamworth (*Library and Reading Room, George Street*).
Yarmouth, Norfolk (*Public Library, South Quay*).

*British Colonies and Foreign States.*

British Columbia—Mechanics' Institute, Victoria.
Public Library, New Westminster.
France—Academy of Science, Paris.
Germany—Kaiserliche Universitäts und Landes-Bibliothek, Strasburg.
Netherlands—Bibliothèque de l'Ecole Polytechnique de Delft.
New Zealand—Athenæum and Mechanics' Institute, Dunedin.
Russia—Imperial Technological Institute, St. Petersburg.
Turkey—Literary and Scientific Institute, Smyrna.
Victoria—School of Mines, Ballaarat.

United States—American Academy of Arts and Sciences, Boston.
American Institute, New York.
American Society of Civil Engineers, New York.
Industrial University, Champaign, Illinois.
Mechanics' Institute, San Francisco.
Mercantile Library Association, Pittsburgh, Pennsylvania.
Odd Fellows' Library Association, San Francisco.
Smithsonian Institute, Washington.
Wabash College, Crawfordsville, Indiana.
Young Men's Christian Association, Scranton, Pennsylvania.

## TRADE MARKS JOURNAL.

The Trade Marks Journal is issued every Wednesday by the Registrar of Trade Marks, in parts of 24 pp., royal 4to., price One Shilling. This publication consists of a list of applications for Trade Marks, with illustrations of the marks in pursuance of the rules under the Act. The first number was published on Wednesday the 3rd of May 1876. The Journal is sold by Knight & Co., 90, Fleet Street, E.C.; Stevens & Sons, 119, Chancery Lane, W.C.; E. Stanford, 55, Charing Cross, S.W.; Shaw & Sons, Fetter Lane, E.C.; Waterlow & Sons, 24 and 25, Birchin Lane, E.C., and 49, Parliament Street, S.W.; Butterworths, 7, Fleet Street, E.C.; George Downing, 8, Quality Court, Chancery Lane, E.C.; J. M. Johnson and Sons, Limited, 3, Castle Street, Holborn, E.C.; Palmer and Howe, 1, 3, and 5, Bond Street, Manchester; Alex. Thom, 87 and 88, Abbey Street, Dublin; and Adam and Charles Black, Edinburgh.

## PATENT OFFICE MUSEUM, SOUTH KENSINGTON.

THIS Museum is open to the public daily, free of charge. The hours of admission are as follow:—

Mondays, Tuesdays, and Saturdays, 10 A.M. till 10 P.M.
Wednesdays, Thursdays, and Fridays, from 10 A.M. till 4, 5, or 6 P.M., according to the season.

If any Patentee should be desirous of exhibiting a model of his invention in London, he may avail himself of this Museum, which has been visited since its opening on the 22nd June 1857 by more than 3,900,000 persons. The model will be received either as a gift or loan; if deposited as a loan, it will be returned on demand. Before sending a model, it is requested that the size and description of it shall first be given to the Superintendent of the Patent Office Museum. No charge is made for the exhibition of models.

GALLERY OF PORTRAITS OF INVENTORS, DISCOVERERS, AND INTRODUCERS OF USEFUL ARTS.—This Collection, formed by Mr. Woodcroft, and first opened to public view in 1853, is now exhibited in the Patent Office.

Presentations or loans of Portraits, Medallions, Busts, and Statues, in augmentation of the Collection, are solicited. They will be duly acknowledged in the Commissioners of Patents' Journal and included in the next edition of the Catalogue.

All communications relating to the Patent Office, Portrait Gallery, Museum, Registry of Designs, or Registry of Trade Marks, to be addressed to Mr. H. READER LACK, Clerk of the Commissioners of Patents, Superintendent of the Patent Office Museum, Registrar of Designs, and Registrar of Trade Marks, at the Office of the Commissioners of Patents, 25, Southampton Buildings, Chancery Lane, London, W.C.

# ABRIDGMENTS OF SPECIFICATIONS.

The following is a KEY to the classes already published. The numbers refer to the List of Abridgments on pages 3 and 4, where the full titles, prices, &c., are given :—

## A.

Accordions. *See* Music, &c., 26.
Accoutrements. *See* Fire-arms, &c., 10.
Acetic acid. *See* Acids, 40.
Acids, &c., 40.
Aerating water. *See* Purifying, &c. water, 79.
Aeronautics, 41.
Agricultural engines. *See* Steam engine, 49.
Agriculture, steam. *See* Steam culture, 8.
Air, &c., engines, 62.
Air guns. *See* Fire-arms, 10.
Air pumps of steam engines. *See* Steam engine, 49.
Alarum clocks. *See* Watches, &c., 9.
Alarums, electric. *See* Electricity, 15.
Alarums, gas. *See* Gas, 17.
Albums. *See* Photography, 19; Books, 43.
Alkalies. *See* Acids, &c., 40.
Alloys. *See* Metals, &c., 18.
Alum. *See* Acids, &c., 40.
Alumina. *See* Acids, &c., 40.
Aluminium. *See* Metals, &c., 18; Acids, &c., 40.
Amalgamating metals. *See* Metals, &c., 18.
Ambulances. *See* Medicine, &c., 25.
Ammonia. *See* Acids, &c., 40.
Ammonium. *See* Acids, &c. 40.
Ammunition. *See* Fire-arms, &c., 10.
Anchors, 69.
Anemometers. *See* Optical, &c., 76.
Annealing furnaces. *See* Fuel 30.
Anthracite furnaces. *See* Fuel, 30.
Antimony. *See* Metals, &c., 18; Acids, &c., 40.
Aqueducts. *See* Bridges, &c., 36.
Arches. *See* Bridges, 36.
Armour plates, rolling. *See* Iron and Steel, 6.
Armour plates, shaping. *See* Ship-building, 21.
Arsenic. *See* Metals, &c., 18; Acids, &c., 40.
Arsenic acid and arsenious acid. *See* Acids, 40.
Artists' instruments, &c., 54.
Asphalte. *See* Roads, &c., 35.
Astronomical instruments. *See* Optical, &c., 76.
Axles, axletrees, and axle-boxes, for railway carriages, &c., *See* Carriages for railways, 46; Steam engine, 49.

## B.

Bagatelle tables. *See* Toys, &c., 51.
Balances. *See* Raising &c., 31.
Balancing, &c. millstones. *See* Grinding grain, 78.
Balloons. *See* Aeronautics, 41.
Balloons, toy. *See* Toys, 51.
Balls. *See* Toys, 51.
Bands and belts. *See* Wearing apparel, 66.
Barium. *See* Acids, &c., 40.
Barley mills. *See* Grinding grain, 78.
Barometers. *See* Optical, &c., 76.
Barrels, 74.
Baryta. *See* Acids, &c., 40.
Baths for medical use. *See* Medicine, &c., 25.
Bayonets. *See* Fire-arms, &c., 10.
Beacons. *See* Harbours, &c., 77.
Beds and bedsteads. *See* Furniture, 39.
Beds and bedsteads for invalids. *See* Medicine, &c. 25; Furniture, 39.
Beer engines. *See* Hydraulics, 32.
Bellows. *See* Fuel, 30.
Bells. *See* Music, &c., 26.
Belts, surgical. *See* Medicine, &c., 25.
Billiards. *See* Toys, &c., 51.
Biscuits. *See* Cooking, 61.
Biscuit ware. *See* Pottery, 24.
Bismuth. *See* Acids, &c., 40,
Bits. *See* Saddlery, 34.
Blacking. *See* Skins, &c., 55; Wearing apparel, 67.
Blast furnaces. *See* Iron and steel, 6; Fuel, 30.
Bleaching, &c., fabrics, 14.
Bleaching fibrous substances. *See* Paper, 11; Spinning, 28.
Blinds. *See* Furniture, 39.
Blinds, ventilating. *See* Ventilation, 52.
Blocks. *See* Raising, &c., 31.
Boas. *See* Wearing apparel, 66.
Boat-building. *See* Ship-building, 21.
Boats, raising and lowering. *See* Raising, &c., 31; Masts, &c., 73.
Boiler plates. *See* Iron and steel, 6.
Boiler tubes. *See* Metallic pipes, 70.
Boilers of steam engines. *See* Steam engine, 49.
Bolting, &c. flour. *See* Grinding grain, 78.
Bolts. *See* Locks, &c., 60.
Bolts. *See* Nails, &c., 58.
Bonnets and Bonnet-boxes. *See* Wearing apparel, 65.
Books, &c., 43.
Boot-cleaning machines. *See* Brushing, 57.
Boot hooks. *See* Wearing apparel, 67.
Boot jacks. *See* Wearing apparel, 67.
Boots. *See* Wearing apparel, 67.
Boracic, acid. *See* Acids, 40.
Bottling. *See* Preparing, &c., cork, &c., 56.
Boxes for pens, leads, &c. *See* Writing, 37.
Braces. *See* Wearing apparel, 66.
Braid. *See* Lace, &c., 29.
Brakes. *See* Carriages for railways, 46; Steam engine, 49; Mining, 71.
Brass. *See* Metals, &c., 18.
Bread-making. *See* Cooking, &c., 61.
Breakwaters. *See* Harbours, &c., 77.
Breast-plates. *See* Fire-arms, &c., 10.
Breeches. *See* Wearing apparel, 66.
Bricks and tiles, 22.
Bricks, ventilating. *See* Ventilation, 52.
Bridges, &c., 36.
Bromine. *See* Acids, &c., 40.
Brushes for artists. *See* Artists' instruments, 54; Brushing, 57.
Brushing, &c., 57.
Buffers. *See* Carriages, &c., for railways, 46.
Bugles. *See* Music, &c., 26.
Bullet-making machines. *See* Fire-arms, &c., 10.
Bungs. *See* Preparing and cutting cork, 56.
Buoys. *See* Harbours, &c., 77.
Bustles. *See* Wearing apparel, 66.

## C.

Cable stoppers. *See* Raising, &c., 31.
Cables, telegraphic. *See* Electricity, 15.
Cadmium. *See* Acids, &c., 40.
Cages, miners' safety. *See* Mining, 71.
Caissons. *See* Harbours, &c. 77.
Calcining furnaces. *See* Metals, &c., 18; Fuel, 30.
Calcium. *See* Acids, &c., 40.
Calculating machines. *See* Optical, &c., 76.
Cameras. *See* Photography, 19; Optical, &c., 76.
Canal navigation. *See* Marine propulsion, 5.
Canals. *See* Harbours, &c., 77.
Candles. *See* Oils, &c., 27.
Candlesticks. *See* Lamps, &c., 44.
Cannon. *See* Fire-arms, 10.
Canvas. *See* Weaving, 20.
Capes. *See* Wearing apparel, 66.
Caps and cap fronts. *See* Wearing apparel, 65.
Caps and capsules. *See* Preparing and cutting cork, 56.
Capstans. *See* Raising, &c., 31.
Carbon. *See* Acids, &c., 40.
Carbonic acid. *See* Acids, 40.
Cardboard. *See* Paper, 11.
Card cases. *See* Books, &c., 43.
Carding engines. *See* Spinning, 28.
Cards. *See* Paper, 12.
Carpets. *See* Weaving, 20.
Carriage lamps. *See* Lamps, 44.
Carriages for guns. *See* Fire-arms, &c., 10.
Carriages for invalids. *See* Medicine, &c., 25.
Carriages, &c., for railways, 46.
Cartridges. *See* Fire-arms, &c., 10.
Cartridges, miner's. *See* Mining, 71.
Cask stands. *See* Casks, 74.
Casks, 74.
Casting metals. *See* Metals &c., 18.
Castors. *See* Furniture, 39.
Cattle medicines. *See* Farriery, &c., 53.
Cement, brush maker's. *See* Brushing, 57.
Centre boards. *See* Steering, 75.
Cesspools. *See* Waterclosets, &c., 63.
Chairs. *See* Furniture, 39.
Chairs, invalid. *See* Medicine, 25; Furniture, 39.
Chamber utensils. *See* Waterclosets, &c., 63.
Chandeliers. *See* Lamps, &c., 44.
Cheese making. *See* Milking, &c., 72.
Chemises. *See* Wearing apparel, 66.
Chenille. *See* Lace, &c., 29.
Chess. *See* Toys, 51.
Chimneys and chimney tops. *See* Fuel, 30.
Chimneys sweeping. *See* Brushing, 57.
Chinaware. *See* Pottery, 24.
Chlorine. *See* Acids, &c., 40.
Chromium. *See* Acids, &c., 40.
Churning. *See* Milking, &c., 72.
Cigars, cigarettes, and cigar holders. *See* Tobacco, 42.
Cinder sifters. *See* Fuel, 30.
Cisterns. *See* Hydraulics, 32.
Citric acid. *See* Acids, 40.
Clasps and clips. *See* Writing, &c., 37.
Clinometers. *See* Optical, &c., 76.
Cloaks. *See* Wearing apparel, 66.
Clocks. *See* Watches, &c., 9.
Clogs. *See* Wearing apparel, 67.
Coal scuttles. *See* Fuel, 30.
Coating metals. *See* Metals, &c. 18; Plating, &c., metals, 23.
Coats. *See* Wearing apparel, 66.
Cobalt. *See* Metals, 18; Acids, &c., 40.
Cocks. *See* Hydraulics, 32.

Coffee mills. *See* Grinding grain, 78.
Coffer dams. *See* Bridges, 36; Harbours, &c., 77.
Coke ovens. *See* Fuel, 30.
Collars. *See* Wearing apparel 66.
Collars for horses. *See* Saddlery, 34.
Colours. *See* Paints, 50.
Colours, artists'. *See* Artists' instruments, &c., 54.
Combing machines. *See* Spinning, 28.
Commodes. *See* Furniture, 39 Waterclosets, &c., 63.
Compasses, drawing. *See* Optical, &c., 76.
Compasses, magnetic. *See* Electricity, 15; Optical, &c., 76.
Compasses, mariners'. *See* Electricity, 15; Optical, &c., 76.
Concertinas. *See* Music, &c., 6.
Condensers of steam engines. *See* Steam engine, 49.
Confectionery. *See* Cooking, &c., 61.
Conveying water. *See* Hydraulics, 32.
Cooking, &c., 61.
Copper. *See* Metals, &c., 18.
Copper oxides, &c. *See* Acids, &c., 40.
Copying presses. *See* Writing &c., 37.
Corkcutting, &c., 56.
Corkscrews. *See* Preparing and cutting cork, 56.
Cornets. *See* Music, 26.
Cots and cradles. *See* Furniture, 39.
Cotton gins. *See* Spinning, 28.
Couches. *See* Furniture, 39.
Couplings for tubes. *See* Metallic pipes, &c., 70.
Crab-winches, steam. *See* Raising, &c., 31; Steam engine, 49.
Cranes. *See* Raising, &c., 31.
Cranes, hydraulic. *See* Raising, &c., 31; Hydraulics, 32.
Cranes, steam. *See* Raising, &c., 31; Steam engine, 49.
Cravats. *See* Wearing apparel, 66.
Crayons. *See* Artists' instruments, &c., 54.
Crayons and crayon holders. *See* Writing, &c., 37; Artists' instruments, &c., 54.
Cricket. *See* Toys, &c., 51.
Crinolines. *See* Wearing apparel, 66.
Crochet needles and holders. *See* Needles, 45
Croquet. *See* Toys, &c., 51.
Crushing grain, &c. *See* Grinding grain, 78.
Crushing machinery for iron ores. *See* Iron and steel, 6; Metals, &c., 18.
Cuirasses. *See* Fire-arms, &c., 10.
Currycombs. *See* Saddlery, 34.
Curtains, *See* Furniture, 39.
Cyanogen. *See* Acids, &c., 40.


## D.


Dams. *See* Harbours, &c., 77.
Dentistry. *See* Medicine, 25.
Derricks. *See* Raising, &c., 31.
Derricks, steam. *See* Raising, &c., 31; Steam engine, 49.
Desks. *See* Writing, 37.
Detonating signals. *See* Railway signals, 38.
Diving apparatus. *See* Raising, &c., 31.
Docks. *See* Harbours, &c., 77.
Dolls. *See* Toys, 51.
Door-springs. *See* Hinges, &c., 59.
Draining mines. *See* Mining, 71.
Drain tiles and pipes. *See* Drains, &c., 1.
Drains and sewers, 1.
Draughts and draughtboards. *See* Toys, 51.
Drawers. *See* Wearing apparel, 66.
Dredgers, steam. *See* Steam engine, 49; Harbours, &c., 77.
Dredging. *See* Raising, &c., 31; Harbours, &c., 77.
Dressing flour and meal. *See* Grinding grain, 78.
Dressing millstones. *See* Grinding grain, 78.
Drums. *See* Music, &c., 26.
Dry docks, *See* Harbours, &c. 77.
Dyeing. *See* Bleaching, &c., 14.
Dynamometers. *See* Optical, &c., 76.


## E.


Earth closets. *See* Waterclosets, &c., 63.
Earthenware. *See* Pottery, 24.
Easels. *See* Artists' instruments, 54.
Electricity, &c., 15.
Embankments. *See* Harbours, &c., 77.
Embroidering. *See* Sewing, 2.
Endless travelling railways. *See* Aids to locomotion, 7.
Envelopes. *See* Paper, 12; Writing instruments, &c., 37.
Excavating. *See* Harbours, &c., 77.
Exercises. *See* Toys, &c., 51.
Explosive compounds. *See* Fire-arms, &c., 10.
Explosive compounds for blasting. *See* Mining, &c., 71.


## F.


Fan blowers. *See* Fuel, 30.
Fans, rotary. *See* Ventilation, 52.
Farriery, &c., 53.
Fats. *See* Oils, &c., 27.
Feeding bottles. *See* Medicine, 25.
Filters, water. *See* Hydraulics, 32; Purifying, &c. water, 79.
Filters, sugar. *See* Sugar, 48.
Fins, steering. *See* Steering, &c., 75.
Fire-arms, &c., 10.
Fire-arms, toy. *See* Toys, 51.
Fire bars. *See* Fuel, &c., 30.
Fire-grates. *See* Fuel, &c., 30.
Fire-proof depositories. *See* Safes, &c., 64.
Fireworks. *See* Toys, 51.
Flageolets. *See* Music, &c., 26.
Flesh brushes. *See* Brushing, 57.
Floating docks. *See* Harbours, &c., 77.
Flues. *See* Fuel, 30.
Fluorine. *See* Acids, &c., 40.
Flutes. *See* Music, &c., 26.
Fog signals. *See* Railway signals, 38.
Food, preservation, 4.
Footways. *See* Roads, &c., 35.
Fountains. *See* Hydraulics, 32.
Frills and frillings. *See* Wearing apparel, 66.
Fringe. *See* Lace, &c., 29.
Fruit-cleaning machines. *See* Brushing, 57.
Fruit, machinery for paring, slicing, &c. *See* Cooking, &c., 61.
Fuel, 30.
Furnaces. *See* Iron and steel, 6; Metals and alloys, 18; Fuel, 30; Steam engine, 49.
Furniture, &c., 39.
Fusees and fusee cases. *See* Tobacco, 42.
Fuses for firing blasting charges. *See* Mining, 71.


## G.


Gaiters, *See* Wearing apparel, 66.
Galvanic batteries. *See* Electricity, 15.
Games. *See* Toys, 51.
Garters. *See* Wearing apparel, 66.
Gas, 17.
Gas engines. *See* Air, &c., engines, 62.
Gas meters. *See* Gas, 17.
Gasometers. *See* Gas, 17.
Gas stoves. *See* Gas, 17; Fuel, &c., 30.
Gas tubes. *See* Metallic pipes, 70.
Gates, dock. *See* Harbours, &c., 77.
Gates, lock. *See* Harbours, &c., 77.
Gauges, air. *See* Ventilation, 52.
Gauges, steam. *See* Steam engine, 49.
Gauges, water. *See* Hydraulics, 32; Steam engine, 49.
Girths. *See* Saddlery, 34.
Globes. *See* Optical, &c., 76.
Globes for lamps. *See* Lamps, 44.
Gloves. *See* Wearing apparel, 66.
Gold. *See* Metals, &c., 18; Acids, &c., 40.
Goloshes. *See* Wearing apparel, 67.
Graphometers. *See* Optical, &c., 76.
Grates. *See* Fuel, &c., 30.
Graving docks. *See* Harbours, &c., 77.
Gridirons for repairing ships. *See* Harbours, &c., 77.
Grinding grain, 78.
Grooming horses by machinery *See* Brushing, 57.
Guitars. *See* Music, &c., 26.
Gunboats. *See* Ship-building, 21.
Gunpowder. *See* Fire-arms, 10.
Gutta-percha. *See* India-rubber, 16.
Gutters. *See* Drains, 1; Roads, 35.
Gymnastics. *See* Medicine, &c., 25; Toys, 51.


## H.


Habits. *See* Wearing apparel, 66.
Hair-brushing machinery. *See* Brushing, 57.
Hair cloth. *See* Weaving, 28.
Hair pins. *See* Needles, &c., 45.
Hammers, steam. *See* Iron and steel, 6; Steam engine, 49.
Hammocks. *See* Furniture, 39.
Harbours, &c. 77.
Harmoniums. *See* Music, &c. 26.
Harness. *See* Saddlery, 34.
Harps and harpsichords. *See* Music, &c., 26.
Hassocks. *See* Furniture, 39.
Hats, hat bands, and hat boxes. *See* Wearing apparel, 65.
Head coverings. *See* Wearing apparel, 65.
Heckling machines. *See* Spinning, 28.
Heliography. *See* Photography, 19.
Helmets. *See* Fire-arms, &c., 10; Wearing apparel, 65.
Hides. *See* Skins, 55.
Hinges and hinge joints, 59.
Hoists. *See* Raising, &c., 31.
Hoists, steam. *See* Raising, &c., 31; Steam engine, 49.
Horns. *See* Music, &c., 26.
Horse medicines. *See* Farriery 53.
Horse shoes. *See* Farriery, 53.
Hosiery. *See* Wearing apparel, 66.
Hospitals. *See* Medicine, &c., 25.
Hulling, &c. grain. *See* Grinding grain, 78.
Hydrants. *See* Hydraulics, 32.
Hydraulics, 32.
Hydrochloric acid. *See* Acids, 40.
Hydrocyanic acid. *See* Acids, 40.
Hydrogen. *See* Acids, &c., 40.
Hydro-propulsion. *See* Marine propulsion, 5.
Hygrometers, *See* Optical, &c., 76.


## I.


India-rubber, 16.
India-rubber horse-shoes. *See* Farriery, 53.
Ink and inkstands. *See* Writing, &c., 37.
Insulators. *See* Electricity, 15

Invalid bedsteads. *See* Medicine, &c., 25: Furniture, 39.
Iodine. *See* Acids, &c., 40.
Iron and steel, 6.
Iron oxides, &c. *See* Acids &c., 40.

J.

Jackets. *See* Wearing apparel, 66.
Jacks, hydraulic. *See* Hydraulics, 32.
Jacks, roasting. *See* Cooking, 61.
Jacks, screw. *See* Raising, &c., 31.
Jacquard machines. *See* Weaving, 20; Lace, 29.

K.

Kaleidoscopes. *See* Optical, &c., 76.
Keels, sliding. *See* Steering, 75.
Kegs. *See* Casks, 74.
Kilns. *See* Bricks and tiles, 23; Pottery, 24; Fuel, 30.
Kites. *See* Aeronautics, 41; Toys, 51.
Knapsacks. *See* Fire-arms, &c., 10.
Kneading machines. *See* Cooking, &c., 61.
Knife cleaners. *See* Brushing, 57.
Knitting machines. *See* Lace, 29.
Knobs. *See* Furniture, &c., 39; Locks, 60.

L.

Labels. *See* Writing, &c., 37.
Lace, &c., 29.
Lampblack, *See* Paints, 50.
Lamps, &c., 44.
Lamps, cooking. *See* Lamps, 44; Cooking, 61.
Lasts for making boots and shoes. *See* Wearing apparel, 67.
Latches. *See* Locks, &c., 60.
Launching vessels. *See* Shipbuilding, 21.
Lead. *See* Metals, &c., 18.
Lead for paints. *See* Paints, 50.
Lead, oxides, &c. *See* Acids, &c., 40.
Leather, *See* Skins, &c., 55.
Lee boards. *See* Steering, &c., 75.
Leggings. *See* Wearing apparel, 66.
Lenses. *See* Optical, &c., 76.
Levels. *See* Optical, &c., 76.
Lifts. *See* Raising, 31.
Lifts, steam. *See* Raising, 31; Steam engine, 49.
Lighthouse lamps. *See* Lamps, 44.
Lighthouses. *See* Harbours, &c., 77.
Lighting mines. *See* Mining, 71.
Limbs, artificial. *See* Medicine, &c., 25.
Lime. *See* Acids, &c., 40.
Lime light. *See* Lamps, &c., 44.
Locks, &c., 60.
Locks, canal, &c. *See* Harbours, &c., 77.
Locks for guns. *See* Fire-arms, 10.
Locomotion, aids to, 7.
Locomotive steam carriages. *See* Steam engine, 49.
Logs. *See* Optical, &c., 76.
Looking-glasses. *See* Furniture, 39.
Looms. *See* Weaving, 20.
Lowering apparatus *See* Raising, &c., 31.
Lozenges. *See* Medicine, 25; Cooking, 61.
Lubricants. *See* Oils, &c., 27.

M.

Machine needles. *See* Needles, 45.
Magic lanterns. *See* Toys, 51.
Magnesia, *See* Acids, &c., 40.
Magnesium. *See* Acids, &c., 40.
Magnetism. *See* Electricity 15.
Malt mills. *See* Grinding grain, 78.
Manganese. *See* Acids, &c., 40.
Mangers. *See* Saddlery, &c., 34.
Mangling machines. *See* Bleaching, &c., 14.
Manifold writers. *See* Writing, 37.
Manœuvring ships and vessels. *See* Steering, &c., 75.
Mantillas and mantles. *See* Wearing apparel, 66.
Manure, 3.
Marine engines. *See* Marine propulsion, 5; Steam engine, 49.
Marine propulsion, 5.
Mariners' compasses. *See* Electricity, 15.
Masts, &c., 73.
Mathematical instruments. *See* Artists' instruments, 54; Optical, &c., 76.
Mattresses. *See* Furniture, 39.
Meat screens. *See* Cooking, 61.
Medicine, &c., 25.
Medicine, horse and cattle. *See* Farriery, 53.
Memorandum books. *See* Books, 43.
Mercury. *See* Acids, &c., 40.
Metals and alloys, 18.
Metals, plating, &c, 23.
Metals, separating. *See* Metals, &c., 18.
Meteorological instruments. *See* Optical, &c., 76.
Meters, gas. *See* Gas, 17.
Meters, water. *See* Hydraulics, 32.
Micrometers. *See* Optical, &c., 76.
Microscopes. *See* Optical, &c., 76.
Milking, &c., 72.
Millboard. *See* Paper, 11.
Mills, barley. *See* Grinding grain, 78.
Mills, coffee. *See* Grinding grain, 78.
Mills, flour. *See* Grinding grain, 78.
Mills, malt. *See* Grinding grain, 78.
Mills, paint. *See* Paints, 50.
Mills, sugar. *See* Sugar, 48.
Mills, water. *See* Hydraulics, 32; Grinding grain, 78.
Millstones. *See* Grinding grain, 78.
Millstones, balancing. *See* Grinding grain, 78.
Millstones, dressing, &c. *See* Grinding grain, 78.
Mincing machines. *See* Cooking, 61.
Miners' lamps. *See* Lamps, 44.
Mines, ventilating. *See* Ventilation, 52.
Mining, &c., 71.
Mittens. *See* Wearing apparel, 66.
Motive power. *See* Hydraulics, 32; Steam engine, 49; Air and gas engines, 62.
Moulds, sugar. *See* Sugar, 48.
Muffs. *See* Wearing apparel, 66.
Mules. *See* Spinning, 28.
Muriatic acid. *See* Acids, 40.
Music and musical instruments, 26.
Music stands. *See* Music, &c., 26.

N.

Nails, &c., 58.
Nails, horse-shoe. *See* Farriery, 53; Nails, 58.
Nautical instruments, *See* Optical, &c., 76.
Neckties. *See* Wearing apparel, 66.
Needle cases. *See* Sewing, 2.
Needles and pins, 45.
Netting. *See* Lace, &c., 29.
Nickel. *See* Metals, &c., 18; Acids, &c., 40.
Nitre. *See* Acids, &c., 40.
Nitric acid. *See* Acids, 40.
Nitrogen. *See* Acids, &c., 40.
Nosebags. *See* Saddlery, 34.
Nuts. *See* Nails, &c., 58.

O.

Oars. *See* Marine propulsion, 5.
Octants. *See* Optical, &c., 76.
Oils, &c., 27.
Optical, &c., instruments, 76.
Ordnance. *See* Fire-arms, 10.
Organs. *See* Music, &c., 26.
Ovens. *See* Fuel, 30.
Ovens, bakers'. *See* Fuel 30; Cooking, 61.
Overalls. *See* Wearing apparel, 66.
Overcoats. *See* Wearing apparel, 66.
Overshoes. *See* Wearing apparel, 67.
Oxalic acid. *See* Acids, 40.
Oxides. *See* Acids, &c., 40.
Oxygen. *See* Acids, &c., 40.

P.

Packing for pistons of steam engines. *See* Steam engine, 49.
Paddle-wheels. *See* Marine propulsion, 5.
Paints, &c., 50.
Paints for artists. *See* Artists' instruments, &c., 54.
Pantaloons. *See* Wearing apparel, 66.
Paper, 11, 12.
Paperhangings. *See* Paper, 12; Printing, 13.
Papier maché. *See* Paper, 11.
Parachutes. *See* Aeronautics, 41.
Parasols. *See* Umbrellas, 47.
Pasteboard. *See* Paper, 11, 12
Pattens. *See* Wearing apparel, 67.
Paving. *See* Roads, 35.
Peat. *See* Fuel, 30.
Pedometers. *See* Optical, &c., 76.
Pencil cases and holders. *See* Writing, &c., 37; Artists' instruments, 54.
Pencil cases, boxes to hold leads for. *See* Writing, &c., 37.
Pens and penholders. *See* Writing, &c., 37; Artists' instruments, 54.
Pens, boxes for holding. *See* Writing, &c., 37.
Pepper hulling. *See* Grinding grain, 78.
Perpetual motion. *See* Hydraulics, 32; Air, &c., engines, 62.
Petticoats. *See* Wearing apparel, 66.
Phenakistoscopes. *See* Photography, 19; Optical, &c., 76.
Phenic acid. *See* Acids, 40.
Philosophical instruments. *See* Optical, &c., 76.
Phosphoric acid. *See* Acids, 40.
Phosphorus. *See* Acids, &c., 40.
Photography, 19.
Pianofortes. *See* Music, &c., 26.
Picture frames. *See* Furniture, 39.
Piers. *See* Harbours, &c., 77.
Pile drivers, steam. *See* Steam engine, 49. Harbours, &c., 77.
Piles. *See* Harbours, &c., 77.
Pins. *See* Needles, &c., 45.
Pipes. *See* Tobacco, 42.
Pipes, drain. *See* Drains, 1.
Pipes, metallic. *See* Metallic pipes, 70.
Pistols. *See* Fire-arms, 10.
Pistons of steam engines. *See* Steam engine, 49.
Pit chains. *See* Mining, &c., 71.
Plaiting. *See* Lace, &c., 29.
Plating metals, 23.
Playing cards. *See* Toys, 51.
Plumb levels. *See* Optical, &c., 76.
Pocket books. *See* Books, 43.
Porcelain. *See* Pottery, 24.
Portfolios. *See* Books, 43.
Portfolios for music. *See* Music, 26.
Potash. *See* Acids, &c., 40.

Potassium. *See* Acids, &c., 40.
Pottery, 24.
Pouches for tobacco. *See* Tobacco, 42.
Powder flasks. *See* Fire-arms, &c., 10.
Power looms. *See* Weaving, 20.
Presses, hydraulic. *See* Hydraulics, 32.
Printing fabrics, yarns, &c. *See* Bleaching, &c., 14.
Printing, typographic, &c., 13.
Projectiles. *See* Fire-arms, &c., 10.
Propellers. *See* Marine propulsion, 5.
Propulsion, marine, 5.
Prussic acid. *See* Acids, 40.
Puddling furnaces. *See* Iron and steel, 6; Fuel, 30.
Pug mills. *See* Bricks and tiles, 22.
Pulleys. *See* Raising, &c., 31.
Pumps. *See* Hydraulics, 32.
Pumps, steam. *See* Hydraulics, 32; Steam engines, 49.
Punkas. *See* Ventilation, 52.
Purifying water. *See* Hydraulics, 32; Purifying and filtering water, 79.
Pyrometers. *See* Optical, &c., 76.

## Q.

Quadrants. *See* Optical, &c., 76.
Quarrying. *See* Mining, &c., 71.
Quays. *See* Harbours, &c., 77.
Quinine. *See* Acids, &c., 40.

## R.

Rafts. *See* Ship-building, 21.
Railway carriages. *See* Carriages, &c., for railways, 46.
Railway signals, &c., 38.
Railways, 33.
Raising, &c., 31.
Raising and lowering ships' boats. *See* Raising, &c., 31; Masts, &c., 73.
Raising ships for repairing. *See* Shipbuilding, &c., 21.
Raising water. *See* Hydraulics, 32.
Ranges, cooking. *See* Fuel, 30; Cooking, 61.
Reflectors. *See* Lamps, 44.
Reservoirs. *See* Harbours, &c., 77.
Respirators. *See* Medicine, &c., 25.
Retorts, sugar. *See* Sugar, 48.
Reverberatory furnaces. *See* Iron and steel, 6; Fuel, 30.
Rice hulling, &c. *See* Grinding grain, 78.
Rigging. *See* Masts, &c., 73.
Rivets. *See* Nails, &c., 58.
Road sweepers. *See* Brushing, 57.
Roads and ways, 35.
Roasting jacks. *See* Cooking, 61.
Rockets. *See* Fire-arms, &c., 10.
Rocking chairs and horses. *See* Toys, 51.
Rollers for roads. *See* Roads, &c., 35.
Ropes and bands for mines. *See* Mining, 71.
Roughing horses. *See* Farriery, 53.
Rudders. *See* Steering, 75.
Ruffles and ruffs. *See* Wearing apparel, 66.
Rulers and ruling machines. *See* Writing, 37; Artists' instruments, 54.

## S.

Sacks. *See* Weaving, 20.
Saddlery, &c., 34.
Safes, &c., 64.
Safety lamps. *See* Lamps, 44.
Safety valves of steam boilers. *See* Steam engine, 49.
Sails. *See* Masts, &c., 73.
Salt, common. *See* Acids, &c., 40.
Saltpetre. *See* Acids, &c., 40.
Salts. *See* Acids, &c., 40.
Salt water, obtaining fresh water from. *See* Purifying, &c. water, 79.
Scales. *See* Raising, &c., 31.
Screens. *See* Furniture, 39.
Screw propellers for carriages and agricultural implements. *See* Aids to locomotion, 7.
Screw propellers for ships. *See* Marine propulsion, 5.
Screws. *See* Nails, &c., 58.
Sealing wax. *See* Writing, &c., 37.
Sea walls. *See* Harbours, &c., 77.
Semaphore signals. *See* Railway signals, 38.
Sewers. *See* Drains, &c., 1.
Sewers, ventilating. *See* Ventilation, 52.
Sewing, &c., 2.
Sextants. *See* Optical, &c., 76.
Shades. *See* Lamps, 44.
Shakos. *See* Fire-arms, &c., 10; Wearing apparel, 65.
Shaving brushes. *See* Brushing, 57.
Shawls. *See* Wearing apparel, 66.
Shawls, weaving. *See* Weaving, 20.
Shear legs. *See* Raising, &c., 31.
Sheathing metals. *See* Metals, &c., 18.
Sheep wash. *See* Farriery, &c., 53.
Ship-building, &c., 21.
Ship lamps and lanterns. *See* Lamps, 44.
Ships, steering and manœuvring. *See* Steering, 75.
Ships, ventilating. *See* Ventilation, 52.
Shirts. *See* Wearing apparel, 67.
Shoes. *See* Wearing apparel 67.
Signal lamps. *See* Lamps, 44.
Signals. *See* Electricity, 15; Railway signals, 38.
Silicic acid. *See* Acids, 40.
Silver. *See* Metals, &c., 18; Acids, 40.
Siphons. *See* Hydraulics, 32; Preparing, &c., cork, 56.
Sizing machines. *See* Weaving 20.
Skates. *See* Toys, 51.
Skins, &c., 55.
Skirts. *See* Wearing apparel, 66.
Slide rules. *See* Optical, &c., 76.
Slippers. *See* Wearing apparel, 67.
Slips. *See* Harbours, &c., 77.
Sluices. *See* Harbours, &c., 77.
Smelting furnaces. *See* Iron and steel, 6; Metals, &c., 18; Fuel, 30.
Snuff and snuff boxes. *See* Tobacco, 42.
Soap. *See* Oils, &c., 27.
Socks. *See* Wearing apparel, 66
Soda. *See* Bleaching, 14; Acids, &c., 40.
Sodium. *See* Acids, &c., 40.
Sounding apparatus. *See* Optical, &c., 76.
Spectacles. *See* Optical, &c., 76.
Spectroscopes. *See* Optical, &c., 76.
Spinning, 28.
Spirit levels. *See* Optical &c., 76.
Spittoons. *See* Tobacco &c., 42.
Spring balance s. *See* Raising &c., 31.
Springs for railway carriages. *See* Carriages, &c., for railways, 46.
Spurs. *See* Saddlery, &c., 34.
Stable brushes. *See* Brushing, 57.
Stable fittings. *See* Saddlery, &c., 34.
Stands for casks. *See* Casks, 74.
Stands for music. *See* Music, &c., 26.
Stannates. *See* Acids, &c., 40.
Stationery. *See* Paper, 11, 12; Writing, &c., 37.
Staves, cutting, shaping, &c. *See* Casks, 74.
Stays. *See* Wearing apparel, 66.
Steam boilers. *See* Steam engine, 49.
Steam culture, 8.
Steam engine, 49.
Steam gauges. *See* Steam engine, 49.
Steam rams. *See* Ship-building, 21.
Steel. *See* Iron, &c., 6.
Steelyards. *See* Raising, &c., 31.
Steering ships and vessels, 75.
Stereoscopes. *See* Photography, 19.
Stirrups. *See* Saddlery, &c., 34.
Stocking fabrics. *See* Lace, &c., 29.
Stockings. *See* Wearing apparel, 66.
Stockings, elastic. *See* Medicine, &c., 25.
Stone breakers. *See* Roads, 35.
Stoneware. *See* Pottery, 24.
Stools, music. *See* Music, 26.
Stoppers. *See* Preparing, &c. cork, 56.
Stoves. *See* Fuel, 30.
Strong rooms. *See* Safes, &c., 64.
Strontia. *See* Acids, &c., 40.
Strontium. *See* Acids, &c., 40.
Submarine cables. *See* Electricity, &c., 15.
Sugar, 48.
Sulphur and sulphuric acid. *See* Acids, &c., 40.
Sun dials. *See* Optical, &c., 76.
Surgery. *See* Medicine, &c., 25.
Surgical instruments. *See* Medicine, &c., 25.
Surveying instruments. *See* Optical, &c., 76.
Suspension bridges. *See* Bridges, 36.
Sweeping. *See* Brushing, &c., 57.
Sweeping chimneys. *See* Fuel, 30.
Sweeping roads. *See* Roads, &c., 35.
Swings. *See* Toys, 51.
Swords. *See* Fire-arms, &c., 10.
Syringes. *See* Hydraulics, 32.

## T.

Tables. *See* Furniture, 39.
Tailors' irons. *See* Wearing apparel, 66.
Tannic acid. *See* Acids, 40.
Tanning leather. *See* Skins, 55.
Targets. *See* Fire-arms, &c., 10.
Tartaric acid. *See* Acids, 40.
Teeth, artificial. *See* Medicine, &c., 25.
Telegraphs, electric. *See* Electricity, 15.
Telescopes. *See* Optical, &c., 76.
Theodolites. *See* Optical, &c., 76.
Thermometers. *See* Optical, &c., 76.
Thimbles. *See* Sewing, 2.
Throstles. *See* Spinning, 28.
Tiles. *See* Drains, &c., 1; Bricks, &c., 22.
Tills. *See* Safes, &c., 64.
Tin. *See* Metals, &c., 18; Acids, &c., 40.
Tinning. *See* Plating or coating Metals, 23.
Tips, boot and shoe. *See* Wearing apparel, 67.
Tobacco, 42.
Tooth brushes. *See* Brushing, 57.
Tops. *See* Toys, 51.
Torpedoes. *See* Ship-building, 21.
Toys, &c., 51.
Tracing cloth and paper. *See* Artists' instruments, &c., 54.
Traction engines. *See* Steam engine, 49.
Trees, boots and shoe. *See* Wearing apparel, 67.
Trimmings. *See* Lace, 29.

Trousers. *See* Wearing apparel, 66.
Tube brushes. *See* Brushing, 57.
Tungstic acid. *See* Acids, 40.
Tunnelling. *See* Mining, &c., 71.
Turbines. *See* Hydraulics, 32.
Tuyeres. *See* Fuel, 30.

U.

Umbrellas, &c., 47.
Unions for tubes. *See* Metallic pipes, 70.
Upholstery. *See* Furniture, 39.
Urinals. *See* Waterclosets, &c., 63.

V.

Vacuum pans for sugar. *See* Sugar, 48.
Valves, air. *See* Ventilation, 52.
Valves, gas. *See* Gas, 17.
Valves, steam. *See* Steam engine, 49.
Valves, water. *See* Hydraulics, 32.
Valves, watercloset. *See* Waterclosets, 63.
Varnish, boot and shoe. *See* Wearing apparel, 67.
Varnishes. *See* Paints, &c., 50.
Vehicles, ventilating. *See* Ventilation, 52.
Vent pegs and spiles. *See* Preparing and cutting cork, &c., 56.
Ventilating mines. *See* Ventilation, 52; Mining, 71.
Ventilating railway carriages. *See* Carriages, &c., for railways, 46; Ventilation, 52.
Ventilation, 52.
Veterinary art. *See* Farriery, 53.
Viaducts. *See* Bridges, &c., 36.
Vinegar. *See* Acids, &c., 40.
Violins. *See* Music, &c., 26.
Vitriol. *See* Acids, &c., 40.

W.

Wafers. *See* Writing, &c., 37.
Waggons, railway. *See* Carriages, &c., for railways, 46.
Waistcoats. *See* Wearing apparel, 66.
Walking-sticks. *See* Umbrellas, &c., 47.
Wardrobes. *See* Furniture, 39.
Washing and sifting ores. *See* Metals, &c., 18.
Washing machines. *See* Bleaching, &c., 14.
Watches, &c., 9.
Water aerating. *See* Purifying, &c. water, 79.
Water, chemical treatment of. *See* Purifying, &c. water, 79.
Waterclosets, &c., 63.
Watercourses. *See* Harbours, &c., 77.
Watering roads. *See* Roads, 35.
Water meters. *See* Hydraulics, 32.
Waterproofing leather. *See* Skins, &c., 55.
Water, purifying and filtering. *See* Purifying, &c. water, 79.
Wearing apparel,—body coverings, 66.
Wearing apparel, foot coverings, 67.
Wearing apparel,—head coverings, 65.
Weaving, 20.
Weighing. *See* Raising, &c., 31.
Well-sinking. *See* Mining, &c., 71.
Wet docks. *See* Harbours, &c., 77.
Wharves. *See* Harbours, &c., 77.
Wheels, railway. *See* Carriages, &c., for railways, 46.
Whips and whip sockets. *See* Saddlery, &c., 34.
Whistles. *See* Railway signals, 38.
Wicks. *See* Lamps, &c., 44.
Winding drums for mines. *See* Raising, 31; Mining, 71.
Windlasses. *See* Raising, &c., 31.
Windlasses, steam. *See* Raising, 31; Steam engine, 49.
Windmills. *See* Air, &c. engines, 62.
Windmills used to propel ships. *See* Marine Propulsion, 5; Masts, &c., 73.
Window fastenings. *See* Locks, &c., 60.
Wire brushes. *See* Brushing, 57.
Wood paving. *See* Roads, 35.
Wringing machines. *See* Bleaching, 14.
Wristbands. *See* Wearing apparel, 66.
Writing instruments, &c., 37.

Z.

Zinc. *See* Metals, &c., 18.
Zinc for paint. *See* Paints, 50.
Zinc, oxides, &c. *See* Acids, &c. 40.

LONDON:
Printed by George E. Eyre and William Spottiswoode,
Printers to the Queen's most Excellent Majesty.

July, 1876.